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METASTATIC ABSCESS OF THE PROSTATE*

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ABSCESS of the prostate gland is generally regarded as a direct or indirect complication of Neisserian infection, either in its acute or chronic process. Frequently, as a result, a prompt diagnosis is not made and the proper therapeutic measures are unnecessarily delayed. There is no basis for this attitude, as such abscesses are not infrequently encountered where there is no history of venereal infection and where its absence is substantiated by the clinical findings. Prostatic suppuration may occur as a sequela to some acute systemic infections, such as influenza and typhoid fever. Bugbee reported four cases which followed influenza during the epidemic of 1918. Abscess in the prostate gland may be frequently precipitated by urethral trauma following instrumentation. Kemble recently reported a case complicating diabetes mellitus and septicemia. A similar case has come under our observation. There is also the group in which the prostatic infection is metastatic in origin and in which the primary focus can be demonstrated. The most common foci are superficial pyogenic infections such as boils, carbuncles, felons, and paronychia. Strominger reported four instances of fatal carbuncle with metastatic abscesses in the prostate gland. Randall, Kretschmer, Ball, and Herman and Carp have described cases of metastatic prostatic abscesses from demonstrable distant foci. The bacteriological cultures from the prostates in these patients showed Staphylococcus aureus. The usual history is that of a healthy individual with a recent pyogenic infection and with symptoms out of proportion to the local pathology who suddenly develops bladder difficulty in the form of frequency and painful urination which progresses rapidly to a complete retention.

Patch and Reid, in 1932, reported a case of prostatic abscess, metastatic in origin, complicated by bilateral renal carbuncles. Cases have been described in which perinephritic suppuration followed prostatic abscess of pyogenic origin. However, in a recent review of sixty-six cases of carbuncle of the kidney, including a personal report, Graves and Parkins found only one instance (Patch and Reid) in which the renal condition was preceded by prostatic suppuration. von Lichtenberg refers to the association of renal and prostatic abscesses. He attributes this to a special etiological factor connecting the two organs but he does not specifically state what this mysterious factor is. He does say, however, that in a pyemic condition the obstruction offered by a swollen prostate would easily tend to lower the resistance of the kidneys and thus render their hematogenous infection all the easier.

Our interest in the subject was stimulated by the following case:

The patient, Carney Hospital No. 34297, a Canadian American married male of twenty-nine years, was admitted on January 3, 1934, with a history of diurnal and nocturnal urinary frequency and pain on voiding of eight days' duration, which was climaxed by complete retention two days before admission. Five weeks previously he had developed a boil on the dorsum of the left wrist which was incised by his local physician. He denied venereal disease by name and symptom. The past genitourinary history was negative.

The family history was negative. The patient was married and had two children. His past history was unimportant. He had always been in good health and the systems were essentially negative.

Physical examination found a well-developed and nourished man. The color was good and the tongue moist. The heart and lungs were normal. Blood pressure was 118/72. On examination of the abdomen, the kidneys could not be felt and were not tender. There was definite resistance to palpation, tenderness, and dulness over the suprapubic area. The external genitals were negative. Rectal examination found a normal sphincter. The prostate gland was somewhat enlarged and boggy throughout. The right lobe felt a little elevated and more prominent than the left, but was not fluctuant.

Laboratory findings: The urine was cloudy, alkaline, specific gravity 1.012; albumin-trace; sugar-none; sediment-pus, free and in clumps. The white blood count was 32,000.

Clinical course: There had been no elevation of temperature, but the history and clinical findings suggested a prostatic abscess. He was placed on a program of alternating hot rectal irrigations and hot sitz baths, high fluid intake and urinary antisepsis. He was placed on catheter drainage. After

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being on this régime for six days with no apparent improvement, the rectal findings indicated the presence of definite suppuration in the right lateral lobe. On January 9 a perineal incision and drainage was carried out and approximately two drams of pus were liberated from the right lobe of the gland. The report of the culture was "Staphylococcus aureus." There was a postoperative elevation of temperature, but his convalescence was otherwise uneventful. He was discharged from the hospital January 19 at which time he was voiding without discomfort although some frequency persisted.

Interval history: About three weeks following discharge the patient developed acute pain in the right flank which had been preceded by several days' premonitory flank discomfort. This was accompanied by marked vomiting and neck pain. Abdominal examination revealed marked spasm and tenderness over the right renal area. The temperature varied from 100 to 103 degrees. He was definitely toxic. Readmission to the hospital was advised. Digital examination of the rectum found no evidence of recurrent abscess formation.

Readmission (February 15, 1934). Cystoscopy: No obstruction was encountered in the urethra. The bladder tone, tolerance, and capacity were normal. The mucosa was moderately injected. The left ureteral orifice appeared normal. The right orifice was quite red in appearance. Number 4 ureteral catheters were passed along the ureters 28 cm. and no obstruction encountered. There was a slow intermittent drip. Specimens were obtained from both kidneys for culture and sediment examination.

Laboratory findings: The bladder urine showed many pus cells. The right kidney urine showed eight to ten red blood cells and an occasional white blood cell, and the left kidney two to six red blood cells per high power field. The kidney cultures were negative. The phenolsulphonphthalein divided function test showed the appearance of the dye from both sides in three and one half minutes and 2 cc., 6.25 per cent on right, and 4 cc., 12 per cent on left, after ten minutes. The blood urea nitrogen was 13 mg. per 100 cc. of blood. The Wassermann was negative. Blood culture was negative.

X-rays: Plain kidney-ureter-bladder with the catheters in position delineated the left renal shadow normal. The right side was somewhat obscured but did not appear definitely abnormal. No shadows were present which were consistent with calculi. The left ureteropyelogram was normal. The right pyelogram revealed the upper and middle calyces normal, but the lower calyx was slightly elongated and there was a definite small filling defect delineated.

Clinical course: The patient's general and local condition did not improve. He experienced a great deal of pain in the right renal area, over which region he was quite tender and spastic. At this time the right kidney was definitely enlarged, especially at the lower pole where a palpable excruciatingly tender mass could be outlined. His temperature varied from 100 to 102.6 degrees and his pulse rate was 100 to 120. The white blood count remained elevated. It was felt that we were dealing with a carbuncle of the lower pole of the kidney, although the possibility of a solitary renal abscess or infarct was kept in mind. On March 18, the patient was taken to the operating room and preparations carried out for an exploration of the right kidney. Spinal anesthesia was administered following which his blood pressure climbed from 122 to 226 and the pulse rose to above 140. His general condition was very poor and he was returned to his room. Following this, his renal pain and tenderness subsided and the palpable mass could not be felt. His temperature gradually subsided also. Any further attempt at surgery did not seem to be indicated. Slight tenderness over the lower pole of the right kidney still persisted, however. The report of the urine sediment on the day he was taken to the operating room showed "many pus cells". There was no change until four days later when the report was "a large number of pus cells, free and in clumps". Several days before his discharge, he developed severe pain over the left renal area, but this persisted for only a few days. He left the hospital on March 27, 1934. Following discharge, the patient's general condition gradually improved, although his temperature was elevated to 99 to 100 degrees for over a month. He was placed on a program of general supportive treatment consisting of a high caloric diet, increased fluid intake and ultraviolet lamp therapy in conjunction with regular office treatment. The smear of the prostate showed a few pus cells when last seen and the voided urine still had a few white blood cells present. He was symptom-free and apparently in excellent health.

COMMENT

Since we were dealing with a patient who had a recent superficial pyogenic infection, and since we had no reason to suspect the presence of Neisserian disease, it was felt that a diagnosis of prostatic abscess, metastatic in origin, was consistent with the clinical and laboratory findings. Relative to the nature of the kidney pathology, a tentative diagnosis of renal carbuncle was justified although solitary abscess and infarct were not excluded in the differential. The physical findings and general clinical picture did not suggest perirenal suppuration. Microscopic and cultural studies of the urine from the affected kidney disclosed no evidence of infection. The delineating of a filling defect in the lower calyx of the right renal pelvis by retrograde pyelogram, suggested pressure from an intrarenal mass. The history of staphylococcic infection, both superficial and in the prostate gland, the clinical course and local physical findings correlated with the laboratory and roentgenological studies seemed to confirm this diagnosis. Cardiac pathology, the most common factor in the development of renal infarcts, was not present so far as we could determine clinically, although there was a rapid pulse rate for several weeks. Barney and Mintz state that acute or chronic heart disease, especially of the valvular type, is almost always present when renal infarcts are encountered.

The spontaneous regression of the renal pathology was quite remarkable. However, in reference to carbuncle of the kidney, Lazarus states that the process may point toward the pelvis and extend into it, rupture spontaneously, and drain itself with ultimate healing and cure. He adds, however, that this is unusual. It is not uncommon to encounter perirenal suppuration due to direct extension from a renal focus, such as renal carbuncle or solitary abscess, to the perinephrium. It is likewise logical to expect in some cases direct extension and rupture into the renal pelvis. The reaction to

the spinal anesthesia in this instance was quite unusual. The definite change in the clinical picture immediately thereafter as revealed by the disappearance of the renal mass and the symptomatic improvement of the patient was probably a coincidence. The manipulation and attendant trauma in placing the patient in the right lateral position may have been a precipitating factor in the rupture of the carbuncle into the renal pelvis however, although this is quite conjectural.

SUMMARY

A case of metastatic abscess of the prostate with secondary renal suppuration rupturing spontaneously into the kidney pelvis is reported. The importance of staphylococcic infections as primary foci for abscesses of the prostate and kidneys is emphasized. Urinary difficulty and retention in a patient with a history of recent superficial pyogenic infection should suggest metastatic abscess of the prostate gland.

REFERENCES

1. Bugbee, H. G.: Infections of genito-urinary tract complicating influenza. J. A. M. A. **73**: 1053 (Oct. 4) 1919.
2. Kemble, A.: Prostatic abscess complicating diabetes mellitus and septicemia; report of case. M. Ann. District of Columbia. **3**: 130 (May) 1934.
3. Strominger, L.: Metastasis in prostate in staphylococcal affections. Presse méd. **34**: 226 (Feb. 20) 1926.
4. Randall, A.: Abscess of prostate. Ann. Surg. **71**: 172 (Feb.) 1920.
5. Kretschmer, H. L.: Abscess of prostate. Surg. Gynec. Obst. **32**: 259 (March) 1921.
6. Herman, L., and Carp, J.: Prostatic abscess. Ann. Surg. **81**: 1115 (June) 1925.
7. Ball, W. G.: Metastatic staphylococcal prostatic abscesses. Brit. J. Urol. **3**: 172 (June) 1931.
8. Patch, F. S., and Reid, R. G.: Carbuncle of the kidney with report of two cases of bilateral involvement. Tr. Am. A. Genito-Urin. Surgeons **25**: 1 (May 26) 1932.
9. von Lichtenberg, A.: Kidney and ureteral lesions secondary to adnexal disease. J. Urol. **24**: 1 (July) 1930.
10. Graves, R. C., and Parkins, L. E.: Carbuncle of the kidney. J. Urol. **33**: 1 (Jan.) 1935.
11. Lazarus, J. A.: Carbuncle of the kidney. J. Urol. **21**: 353 (March) 1929.
12. Barney, J. D., and Mintz, E. R.: Infarcts of the kidney. J. A. M. A. **100**: 1 (Jan. 7) 1933.

A WARNING ABOUT ACIDIFICATION THERAPY IN CASES OF RENAL INFECTION DUE TO THE PROTEUS BACILLUS*

BY RICHARD CHUTE, M.D.†

RECENTLY, acidification therapy in the treatment of urinary tract infections and calculi has been advocated so widely and enthusiastically, and without warning that it could do harm, that I am impelled to point out one condition in which I feel that the indiscriminate use of acid therapy may lead to trouble. This condition is renal infection with the proteus bacillus. This bacillus is a not uncommon invader of the urinary tract and produces an infection which is extremely persistent and stubborn, and is very resistant to the ordinary methods of combating urinary infections. It has the property of rapidly splitting the urea of the urine and producing ammonia, thus making the urine intensely alkaline. This alkaline infected urine greatly predisposes to the formation of calcareous incrustations and stones in the urinary tract, which are a characteristic finding in these cases[1, 2]. These stones and incrustations are composed chiefly of calcium phosphate. Phosphates, as you know, tend to precipitate out in an alkaline urine, and will not precipitate out of a strongly acid urine. In accordance with this property of phosphates, systemic acidifying therapy is used in patients who form calcium phosphate stones in order to keep the urine strongly acid and thus prevent any tendency of the phosphates to precipitate out, with the possibility of a tendency to stone formation.

With these facts in mind, let me tell you about a certain patient of mine, a man of thirty-one, who had one stone removed from his right kidney in 1929, and another removed from his left kidney in 1933. Both these stones were composed chiefly of calcium phosphate. In 1933 he was studied thoroughly from the metabolic standpoint and, in view of a slightly raised blood calcium and a slightly increased amount of calcium excreted in his urine, it was thought that he might possibly be suffering from hyperparathyroidism, and his neck was explored, but no parathyroid tumor was found, although one parathyroid gland was never located. Last fall (1935) he entered the hospital again and I found that he had a proteus bacillus infection of each kidney, and that a stone in the right kidney, which I had been watching grow gradually for more than two years, had become large enough to require surgical removal. This I did, leaving in a nephrostomy tube for irrigations of acid. Then I decided on a drastic and forceful campaign to stamp out this infection. Since he was rather washed out following the operation, and since the ketogenic diet has not been remarkably successful in treating proteus infections, I did not start him on this diet, but decided to acidify his urine strongly and give large doses of methenamine. Accordingly, I started with the usual dose of one gram of ammonium chloride four times a day and, the urine remaining alkaline, gradually increased the dose over a period of about five weeks, reaching a peak at the end of this period when, by means of a modification of Keyser's acidifying syrup[3], I gave as much as twenty grams of ammonium chloride per day for three days. Still the urine did not become acid. At this point, Dr. Fuller Albright pointed out that ammonium compounds are nitrogenous and are excreted in the urine as urea.

Years ago Folin[4] showed that an increase in the nitrogen of the diet is followed by an increase in the amount of urea excreted in the urine. Therefore, in this case, by the ingestion of large amounts of ammonium chloride, the amount of urea excreted

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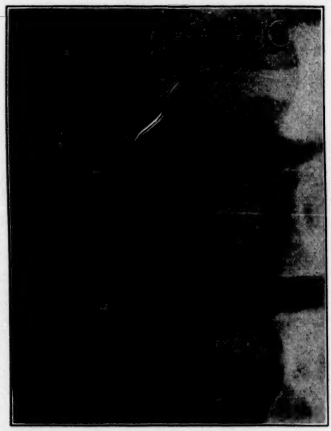
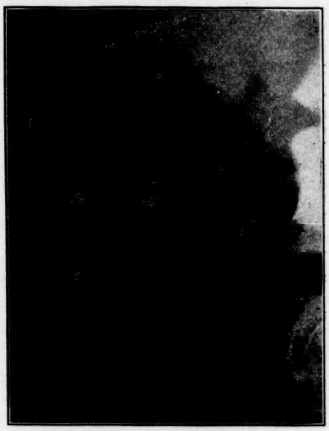
in the urine must have been greatly increased, which superabundance of urea had doubtless been giving the proteus bacilli a very rich pasturage and promoting their growth and their output of ammonia. Then I switched to nitrohydrochloric acid and gave that for another month, at one time giving as much as 60 cc. of Crance's nitrohydrochloric acid mixture[5] in twenty-four hours. I had only slightly better luck with the nitrohydrochloric acid and, even with the maximum dose, never succeeded in getting the urine more than very slightly acid (never below pH 6.5). During these two months of intensive acid medication the patient passed at least four ureteral stones, each one about the size of a drop of water, which were composed chiefly of calcium phosphate. Near the end of the two months, the patient began to complain of pain in the unoperated kidney, and you can well imagine my feelings when x-rays showed that a good-sized stone had formed in the kidney pelvis (figs. 1 and 2). Plates taken



X-ray on December 17, 1935, showed one small stone in left kidney.

FIG. 1.



X-ray on January 24, 1936, showed the same small stone and in addition a large stone in the kidney pelvis which had formed since the last x-rays—thirty-eight days before.

FIG. 2.

thirty-eight days before had not shown this, so that the stone must have formed pretty much during that period of about a month between pictures. The other kidney on which I had operated and which was getting daily lavage with acetic acid through the nephrostomy tube, showed no new stone formation. Shortly after this, the patient had his fourth kidney operation, and I removed this stone. It was soft and crushed easily and was obviously a new formation not yet fully calcified. It was composed chiefly of calcium phosphates, but also showed some oxalate and a little carbonate.

On thinking this case over and wondering why the patient had this sudden increase of stone formation—one large stone and at least four small ones in less than two months—and had formed stones infinitely faster than he ever had before, I remembered that acidifying the system greatly increases the excretion via the urine, of both calcium and phosphorus. This has been pointed out by Hunter[6] of London, and Aub and his co-workers[7] in this country. This latter group showed that when a person's system is acidified by taking four to six grams of ammonium chloride per day, a smaller dose than I had given, that person will excrete, via his urine, more than six times as much calcium and more than one and a half times as much phosphorus as he ordinarily would.

Then I saw the explanation. By giving a large amount of acidifying medicines I had strongly acidified the system and caused a great increase in the amount of calcium and phosphorus excreted via the urine, a condition analogous to hyperparathyroidism. This would probably have been all right if I had succeeded in getting and keeping the urine strongly acid, thus absolutely preventing the precipitation of phosphates. However, due to the rapid ammonia production by the proteus bacilli, I was never able to get the urine really acid; and so there existed the unfortunate combination of a greatly increased amount of calcium and phosphorus in a urine which was alkaline and infected with proteus bacilli—a combination strongly predisposing to stone formation.*

SUMMARY

The three points which I wish to make are the following:

1. The urine in infections of the urinary tract should always be cultured in order to know what organism one is dealing with, since what may be the proper régime in treating infections

*Since the above paper was written, Dr. Edward L. Peirson, Jr., of Salem, has reminded me of the importance of the functional efficiency of the kidney in the matter of urinary acidification. The better the renal function, the more effect the acid medication will have in the direction of acidifying the urine and the less effect it will have in the direction of producing systemic acidosis and increased excretion of calcium and phosphorus. On the other hand, in the presence of poor renal function, there is a greater tendency toward systemic acidosis and thus probably toward increased calcium excretion with, at the same time, a lessened ability of the kidneys to excrete a strongly acid urine.

In the case reported above, I do not believe this matter played an important part as the nonprotein nitrogen of the blood was not elevated, and the renal function as measured by the excretion of phenolsulphonphthalein by each kidney was pretty good. No estimations of the CO_2 combining power of the blood were made. However, I believe that this is an important consideration, and I plan to carry on further investigations along this line with complete biochemical studies.

due to the colon bacillus may be the wrong thing in dealing with infections due to the proteus bacillus.

2. In cases of infection with the proteus bacillus, ammonium chloride would seem to be unsuitable as a urinary acidifier for biochemical and bacteriological reasons.

3. In treating infections of the kidneys with the proteus bacillus, systemic acidification may be dangerous and lead to the formation of new stones, unless one is successful in obtaining a strongly acid urine. This may be impossible due to the rapid manufacture of ammonia by the proteus bacilli.

REFERENCES

1. Hager, B. H.: Etiology of calcareous pyelonephritis. J. Urol. 15: 133 (Feb.) 1926.
2. Hager, B. H.: Clinical data on alkaline incrusted cystitis. J. Urol. 16: 447 (Dec.) 1926.
3. Keyser, L. D.: Personal communication.
4. Folin, Otto: Laws governing the chemical composition of urine. Am. J. Physiol. 13: 66, 1905.
5. Crance, A. M., and Maloney, T. W.: A new acid medication in the treatment of bacilluria. J. Urol. 33: 657 (June) 1935.
6. Hunter, Donald: The significance to clinical medicine of studies in calcium and phosphorus metabolism. Lancet. 1: 897 (April 26) 1930.
7. Farquharson, R. F., Salter, W. T., Tibbetts, D. M., and Aub, J. C.: Studies of calcium and phosphorus metabolism. XII. The effect of the ingestion of acid-producing substances. J. Clin. Investigation. 10: 221, 1931.

THE TREATMENT OF HYPOSPADIAS IN THEORY AND PRACTICE*

BY HUGH CABOT, M.D.†

I DO not propose this evening before this society of experts to discuss in detail the well-established methods of dealing with the deformities of hypospadias. Rather I propose to draw upon my own experience in the attempt to point out some of the difficulties and hopefully to suggest some methods of avoiding them.

The requirements of successful correction of the deformities of hypospadias are twofold, first, the correction of the almost always present deformity of curvature, and secondly, the construction of a satisfactory urethral canal.

CORRECTION OF THE DEFORMITY OF CURVATURE

It has, I think, been too widely assumed that the correction of the deformity of curvature may properly be regarded as a step or stage in the procedure of correcting the deficiency of the urethra. This has led but too often to the attempt to correct the deformity after the child has reached the age of eight or ten, or even adult life. Thus no opportunity is allowed for development of the parts after the correction has been satisfactorily done. Although the desirability of correcting the deformity in very early life has been frequently stressed by various writers on the subject, it has not, I think, been sufficiently grasped by the people who are most likely to see these patients, namely, the obstetricians, the pediatricians, and the general practitioners. I therefore risk stating again the opinion that the correction of the deformity should be undertaken in very early life, probably at or before the age of two years. A considerable interval amounting to at least three or four years should then be allowed to elapse before the construction of the urethra is undertaken.

Methods of overcoming the deformity of curvature.—For this there are three types of procedure which are perhaps applicable to more or less definite types of deformity. For the average deformity seen in the cases of penile and penoscrotal hypospadias the method by transverse incision on the ventral aspect is as a rule satisfactory. It is commonly held that in the more severe deformities two such incisions should be made, one near the base of the glans and one just in front of the opening of the urethra. This method I have used in a considerable number of cases, but have come to the opinion that one incision is as a rule sufficient. The crux of the matter lies in the very complete removal of the fibrous tissue occupying the position of the missing part of the corpus spongiosum.

One would gather from the literature that the transverse incisions are often carried only through Buck's fascia, and deeply through the abnormally thick fibrous septum lying between the corpora cavernosa. This does not seem to me satisfactory and I believe that the very complete removal of the fibrous tissue, chiefly in the midline through a transverse incision placed about the midway between the meatus and the glans, is more satisfactory. Success will as a rule depend upon the completeness with which the fibrous tissue is removed together with a fairly free mobilization of the skin flaps on either side, so that they may be readily approximated vertically and without tension. In some cases the satisfactory bringing together of the lateral ends of the incision will bring tension upon the skin of the penis to an undesirable extent. This can be readily overcome by a longitudinal dorsal incision which relaxes the skin so that approximation on the ventral surface becomes easy and the dorsal incision can be closed transversely, a position which it will occupy of its own accord.

The next method is that involving the use of pedicle flaps, and it is most likely to be required in the extreme deformities generally associated with the perineal types of hypospadias.

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Blair has devised a very clever method of utilizing the prepuce to cover the raw surface on the ventral side necessarily created by the removal of the confining fibrous tissue and the straightening of the penis. I have myself most frequently used the method of Edmunds, which consists in the creation of a buttonhole flap in the prepuce which some weeks later when the blood supply has become satisfactorily adjusted is utilized after division in the center to close the gap (fig. 1). By the use of these flap

FIG. 1. Buttonhole flap of Edmunds two months after the first operation.

methods the deformity can be considerably overcorrected, which in these extreme cases is, I believe, desirable.

It should be pointed out that the flap methods which utilize the prepuce will veto the possibility of using one of the methods for formation of the urethra, namely, that of Ombrédanne. It is essential, therefore, that a decision be made at this time whether the Ombrédanne operation is to be utilized and, if such is the case, correction by other methods than the use of flaps from the prepuce will be essential.

The third method is that suggested by Hagner who utilizes skin grafts passed above the confining fibrous tissue at two points. These grafts are sutured about a trocar, which is then passed through the penis transversely above the fibrous bands. This of course means that they must invade the cavernous tissue of the corpora cavernosa. After an appropriate interval these tunnels are divided on the ventral surface, thus overcoming the deformity. Hagner reports very favorable results by this method. With it I have no personal experience and tend to think that it is more likely to be useful in the patients at or approaching adult life than for the children at the more appropriate age. I should also be fearful that the placing of these grafts through portions of the cavernous tissue would result in the formation of scar which might itself as time went on reproduce the deformity.

THE CONSTRUCTION OF THE URETHRA

Here we have at our disposal and in more or less common use three types of procedure. These stated in order of their historical precedence are the Thiersch-Duplay type, the Bucknall type, and the Ombrédanne type. I do not propose to discuss in detail or to illustrate these operations, since they have been fully illustrated in articles by Cecil, Lyle, and Cabot, Walters, and Counseller.

The Thiersch-Duplay type. — The principle here involved is the use of flaps with very broad pedicles taken from the shaft of the penis, and in the case of the perineal type of deformity from the non-hair-bearing skin in the cleft of the divided scrotum. The operation is applicable to any type of deformity. It is, I think, essential to recognize the principle introduced by Thiersch of turning the skin flap which is to form the urethra from one side, and the flap which is to form the outside covering from the other, thus avoiding as far as possible the superimposition of suture lines.

The next point which I wish to stress is the importance of broad union of the edges of the flaps rather than the attempt to suture edge to edge as is appropriate for the average surgical incision. It seems desirable to invert the flaps forming the urethral tube in such a way that the edges are turned inward and the surfaces applied to each other by sutures which do not emerge on the skin margin. For the purposes of this suture I believe the use of very fine catgut, articulated to a fine curved needle so that there is no excessive bruising of the tissues, as is involved where the ordinary eye needle is employed, is desirable.

Diversion of the urine during the period of healing is essential. This may be done either by suprapubic cystostomy or by the creation of a perineal boutonnière. Cecil, who has had a large experience, strongly advocates the use of the suprapubic method. In my hands this has not worked notably more satisfactorily than has the perineal method. In either case should the catheter become obstructed or displaced, urine will pass along the new formed urethra. Particularly in children, suprapubic drainage does not seem to me secure against failure of drainage, and in fact has in my hands been less satisfactory. The perineal boutonnière can be easily made after the plastic operation has been carried out on the urethra, over an inlying catheter. This will be facilitated if a suture upon a curved needle is passed deeply about the urethra after the patient has been placed in the lithotomy position. Tension on this suture draws the

urethra up against the skin, and a very small opening can then be made directly into the urethra through which the catheter can be readily withdrawn and properly adjusted. Young advises the placing of a suture about the urethra in front of the boutonnière, tied sufficiently tightly to close the canal and thus avoid urinary contamination. I have not felt willing to do this since the risk of constricting the urethra to such an extent as to form a stricture does not seem to me one which can be safely overlooked.

In passing it may be noted that the accurate adjustment of the catheter should be made only after the patient has been replaced on the table with the legs extended normally. If adjustment is made while the patient is still in the lithotomy position, it will almost always be faulty, commonly because the catheter will lie too far out as the result of change of the tension of the perineal tissues. In keeping the catheter draining constantly, the addition of a constant suction by means of the principle of the Bunsen pump has seemed to me very helpful. Certainly the liability to blocking of the catheter and passage of urine about the catheter is very importantly diminished and generally avoided.

The aftercare of these cases is one of considerable importance, and there is, I think, no very general agreement as to the best method. There is much to be said for the very early removal of dressings, thus allowing the parts to be exposed and kept under electric lights. This requires very careful supervision by the nurse, and will in practice require twenty-four hour supervision in order to avoid accidents. In some cases, at least, my experience has shown that there is liability to edema coming on during the first few days, and I have therefore compromised by using a dressing for three or four days, at the end of which time lights are substituted. The original dressing should be a moist one—we have generally used acriflavine—placed in such a way as to keep the penis in full extension and exert moderate, even pressure. This moist dressing will dry during the first twenty-four hours and form a very effective splint.

Where all goes well, and particularly in the hands of surgeons who have had considerable practice, this operation gives, I think, the most perfect result of any of the methods (fig. 2). On the other hand, it must be freely admitted that the liability to fistula formation is a serious handicap. Although the principle of avoiding overlapping flaps is undoubtedly important, it will be found in practice that these flaps tend to contract in such a way as to bring the suture lines, particularly at the penoscrotal angle, very closely into line. The occurrence of a fistula is most common at the penoscrotal angle and in my experience has been difficult to repair, in some cases requiring two or three attempts. I tend to think that this is due to the increased tension which occurs in the lateral flap at this point, and I particularly call attention to the desirability of mobilizing the flaps very freely, avoiding tension of even the most moderate amount and if necessary releasing the tension on the flaps by a dorsal incision at the base of the penis. Complete success with this operation requires experience, scrupulous care in the placing of sutures, and patience during the operative procedure. Skillful aftercare is undoubtedly more important in the success of

FIG. 2. End-result of the Thiersch-Duplay operation shortly after closure of a small fistula at the penoscrotal angle.

this operation than in the case of the other two types.

The Bucknall operation.—As you know, the principle here involved is the use of the skin of the scrotum in the formation of the lower wall of the urethral canal. In his original communication in 1907 Bucknall suggested that the operation had two limitations. He thought that it could not be applied to cases of perineal hypospadias, and he suggested that since the skin from the scrotum was hair-bearing, this might give rise to complications after the patient reached puberty. His first objection, namely that the operation is not applicable to cases of perineal hypospadias, is not valid. It is very easy to convert the perineal type of hypospadias into the penoscrotal type. In these cases, where there is always a cleft scrotum, the skin which will be utilized in the formation of the urethra is non-hair-bearing. The inner tube having been formed from this non-hair-bearing skin, the dissection should then be carried deeply into the scrotum on either side and the cleft deformity entirely obliterated. I have found it useful to bring the loose connective tissue on either side of the scrotum together over the newly formed tube of the urethra and then to approximate the skin of the scrotum so that the parts are restored to a practically normal rela-

tionship. At this stage in the operation perineal drainage should be employed. An interval of some months should then be allowed to elapse before the typical procedure of Bucknall is carried out on the urethra which now emerges at the penoscrotal angle.

Bucknall's second objection, that the hair-bearing skin may introduce a later complication, is a valid one. Vermooten reported to this Association in 1930 a case previously operated upon by Churchman in which the growth of hair in the urethra had caused serious complications. I have myself seen two cases in which this complication had arisen and I shrewdly suspect that it is more common than we have been led to suppose from a perusal of the literature. This complication led me to abandon the Bucknall operation after ten years of quite successful use. More recently I have carried out a procedure suggested by Cecil of using only non-hair-bearing skin for the formation of the inner tube (fig. 3). This I have had an opportunity of doing in two cases, with successful immediate results. Since the end-result will not be complicated by the development of hair, it seems possible that this modification of the Bucknall method may avoid what appears to me to be the only serious objection to this operation.

In my earlier cases I thought it would be safe to leave out the quilled suture which was advised by Bucknall. Experience, however, satisfied me that the use of the quilled suture in approximating the lateral flaps was highly desirable. For this purpose I now use a heavy aluminum wire which seems to me more satisfactory than any other method of quilling the suture.

As to the place of the operation it may be safely said that it avoids the danger of fistula formation with great certainty. The immediate result is unsightly as compared with the Thiersch-Duplay operation, but if it is done at the appropriate age, growth of the parts overcomes the redundant tissue and the functional results are sound. As originally described, the operation left an unduly large meatus. This can be satisfactorily corrected at a later stage, preferably one year after the original procedure, and is, I think, a desirable addition to technic.

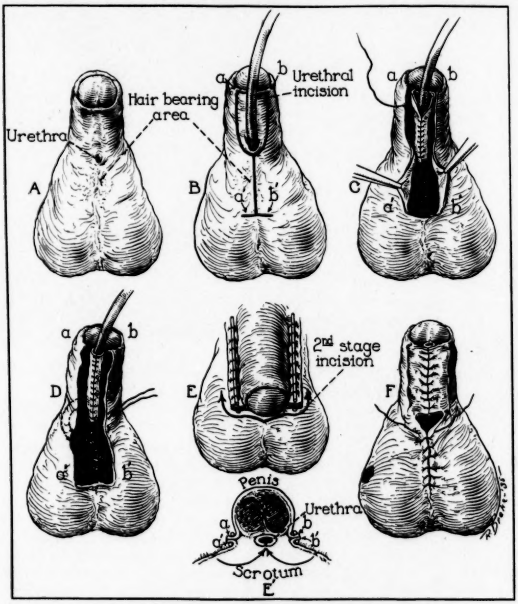

FIG. 3. Modified Bucknall operation: It will be noted that the skin utilized in the formation of the inner urethral tube is from a non-hair-bearing region; in other respects the operation follows closely the procedure of Bucknall.

The Ombrédanne operation.—This is a highly ingenious method which has been utilized by its author in an amazingly large series of cases.

The principle is to utilize a scrotal flap to form the urethra up to a point near the base of the glans. The balance of the urethra is then formed from the buttonholed prepuce, which, although at first giving a wide funnel-shaped meatus, can be reconstructed by later steps in the operation to give a most satisfactory canal. The operation is not technically difficult and does not require the niceties of technic of the Thiersch procedure. Occasionally the portion of the canal formed from the prepuce may be lost as the result of sloughing, but this is on the whole an uncommon accident. The only valid objection that I can see is the use of the hair-bearing tissue of the scrotum for the formation of a considerable part of the canal. This is the same objection which has proved a stumbling block in the Bucknall operation as originally devised. It is true that there is no evidence from the literature that this is an important complication. On the other hand, there is perhaps no field in urologic surgery in which we know so little in regard to what may be called the end-result. As a rule these patients are or should be operated upon in childhood. An end-result cannot be estimated until these patients have grown to full maturity, and the final evidence in regard to the complete correction of the deformity and the complete utility of the urethral canal can be satisfactorily judged. I have been unable to find any considerable collection of such end-results and can only hope that as time goes on we shall get more evidence upon this point.

In summing up, it seems to me quite clear that the surgeon who desires to offer to these little patients the most satisfactory outcome must be equipped to utilize each of these various procedures where it seems most appropriate. For the skilled plastic surgeon the Thiersch operation has many advantages. For the occasional operator it is likely to prove difficult. The Bucknall and Ombrédanne procedures are less difficult, and are likely, I think, to prove more satisfactory in the long run. In certain cases both operations may be employed, as for instance where some surgeon has light-heartedly done a circumcision, thus removing essential tissue. Also the Bucknall type of operation may be used in those probably rare cases in which the preputial flap of the Ombrédanne operation has sloughed to a greater or less degree. Again the Bucknall operation can be utilized where previous operations of the Thiersch type have failed and where there is excessive scar tissue in the region from which the lateral flaps of the Thiersch operation would have to be taken. Time alone will allow a decision as to the importance of the growth of hair as a complication of the Ombrédanne operation.

In a recent paper by Walters he reports his results in thirty-two patients subjected to the Ombrédanne procedure. In these the results were excellent in twenty-eight. In four, more or less sloughing of the preputial portion of the canal required the use of the Bucknall procedure to finish the job. This is a most satisfactory showing and is the largest group of cases of this operation reported in this country. He also reports on sixteen cases where the Bucknall type of operation had been employed. Of these, excellent results were obtained in fourteen, while in two, on account of injury to the skin flap in the second stage of the Bucknall procedure, small fistulae developed, which, however, were readily corrected. I have myself utilized the Thiersch method in thirteen cases. They have required forty-six operations, which means of course that particularly in the early cases I was not able to avoid fistula formation. The end results, however, after these many procedures have been eminently satisfactory.

REFERENCES

1. Blair, V. P.: Hypospadias and epispadias, indications for and technique of their operative correction. Tr. South. Surg. A. **42**: 163, 1929.
2. Bucknall, R. T. H.: A new operation for penile hypospadias. Lancet. **2**: 887 (Sept.) 1907.
3. Cabot, H., Walters, W., and Counseller, V. S.: Principles of treatment of hypospadias. J. Urol. **33**: 400 (April) 1935.
4. Cecil, A. B.: Surgery of hypospadias and epispadias in the male. Tr. Am. A. Genito-Urin. Surg. **24**: 253, 1931.
5. Churchman, J. W: Hypospadias, with particular reference to the operation of Bucknall. Ann. Surg. **71**: 486 (April) 1920.
6. Duplay, Simon: Hypospadias. Internat. Encyclopaedia Surg. **6**: 487, 1886.
7. Edmunds, Arthur: An operation for hypospadias. Lancet. **1**: 447 (Feb. 15) 1913.
8. Hagner, F. R.: A new method for straightening the penis in hypospadias. J. A. M. A. **99**: 116 (July 9) 1932.
9. Lyle, H. H. M: Ombrédanne's pouch operation for hypospadias. Ann. Surg. **98**: 513 (Oct.) 1933.
10. Ombrédanne, L.: Précis Clinique et Opératoire de Chirurgie Infantile. Paris, Masson and Cie, 1923, pp. 654-689.
11. Thiersch: Quoted by Cecil.
12. Vermooten, Vincent: A ball of hair in the urethra; a late complication of the Bucknall operation for hypospadias. New Eng. J. Med. **202**: 658 (April 3) 1930.
13. Walters, Waltman: Successful operations for hypospadias. (In Press.)
14. Young, H. H.: Quoted by Cecil.

DISCUSSION

DR. GEORGE G. SMITH: I must admit that I have approached the few cases of hypospadias that I have seen in the last few years with a great deal of trepidation; I have had a good deal of grief. The earlier ones I tried to get away with by making a perineal boutonnière, but I didn't find it worked so well. Within the last few months, I have done two cases in boys of five to six years, in whom I did suprapubic cystotomies with practically primary union in both cases. One of these has left the hospital; I saw him several months later and he has a fistula of about the size of a hair through which a few drops of urine leak at the original site. I suppose some time I shall probably have to do something to that. I will remember what Dr. Cabot said about the closure of it. The other case is still in the hospital; we just took his tube out today, and I think he has a small fistula. There is a suspicious looking little hole there but in the main it looks very satisfactory. I think that in any I do after this I shall do a suprapubic cystotomy at the time.

There is one point that I think is very essential to bear in mind. That is that either the patient or the patient's family shall understand what your plan

is. I remember one Italian boy on whom I did a first stage at the Baker. He was a rather wild patient while he was there. We didn't speak the same language and about a week after he got out he came around to the office and I thought he was going to commit mayhem. He said "Before the operation, the hole is down at the end, now look where it is."

I have enjoyed this talk of Dr. Cabot's very much, as I always enjoy everything he says. I think he has covered a great many of the practical difficulties which have not been covered in any of the talks I have heard before. I have seen pictures of the finished results, but haven't heard of any of the hot spots on the way and I appreciate very much Dr. Cabot's going over these hot spots so thoroughly.

DR. J. DELLINGER BARNEY: I also approach a hypospadias in fear and trembling. I will omit the subject of fistula because it has been talked of before. As a father must stand up for his own child, I would like to say that I think the perineal drainage is rather better than the suprapubic, perhaps because of the fact that I haven't had the difficulty that Dr. Cabot spoke of in finding the urethra. This is due entirely, of course, to the fact that I have done it by the method of making a perineal boutonnière which I described some time ago. I think the urethra is pretty easily found by this method, and I think it will work in these penoscrotal cases perfectly well, but I must confess I have not used it in one of the perineal type. The catheter is pushed into the bladder entirely and the outer end of the catheter grasped by a clamp. The clamp bearing the catheter is carried on through the urethra into the deep bulb, and then pushed against the skin so that one simply cuts then on the protruding end of the clamp. The clamp with the catheter grasped in it comes out through the incision which is about 1 cm. in length. That can be done with the patient in the dorsal position without the necessity of putting him up in lithotomy position. I don't say that perineal drainage is better than suprapubic, but it has been more satisfactory in my hands. Also, it is advantageous because it can be done with equal ease for several times in the same patient and without untoward results.

DR. E. GRANVILLE CRABTREE: I have enjoyed Dr. Cabot's exposition for the same reason that Dr. Smith has already mentioned. These cases do have some grief connected with them. The question of whiskers in the urethra is a very definite one with the Bucknall operation. I had a family that had but three children, they were all males and they all had penoscrotal hypospadias. I did exactly the same operation on the three of them. The last one was done nine years ago. The first one has a regular paint-brush effect which seems not to bother him; he won't let any one pull the hairs out. The other two were the same type of operation and have had no difficulty whatever with hair production. They were all done quite young.

DR. DEMING: I have noticed that Dr. Cabot, in his talk, has not mentioned the fact of bringing the urethra up through the glans and most of the slides, which he has exhibited, show the opening of the meatus in the frenum area. Is it necessary to split the glans penis and carry the urethra to its normal position?

I was very glad to hear Dr. Cabot stress the postoperative care of these cases. I have failed in some cases because I did not do the dressings myself and now when I operate on a hypospadias case I am in every day and I do the dressing myself. I dare not leave it to anyone on my staff and I find, by doing that, I can accomplish much and make every operative step a success instead of a failure. I am delighted to hear Dr. Cabot stress this point with a good deal of emphasis.

As regards the cause of hypospadias, Dr. Cabot made a statement that he thought it probably was due to the devil. I was wondering what he thought of Dr. Young's explanation with respect to derangement of the genes.

I wish to express my appreciation to Dr. Cabot for the clear and direct presentation of the subject.

DR. HUGH CABOT: I hope that if Doctor Smith should ever return to the use of perineal drainage, he will try constant suction. I had no luck until I tried it and since trying it, I have had no leakage. I did not succeed in keeping the patients dry with suprapubic drainage. Cecil advises that the suprapubic should be done two weeks before the other operation. I dislike making any more bites than I have to.

Doctor Barney, did you not have difficulty in getting a small enough clamp to go through these urethras with the catheter? I did not use that method because I did not have a clamp small enough to pass. I was afraid of traumatizing the urethra. You do it, I take it, before you begin your operation. You cannot do it afterwards.

DR. J. DELLINGER BARNEY: Yes, it is a preliminary step. I have the catheter come out through a little hole in the perineum. With a small No. 10 or 12 catheter and a mosquito snap, I haven't had any trouble.

DR. HUGH CABOT: My first patient who grew hair apparently had only urethral irritation and as he had a very capacious urethra, an endoscope could easily slip in and you could see the whiskers. The next patient I saw came in on account of a fistula with a lot of local irritation. There was no stone formation in that case around the hair, but there was the beginning of a hair ball. The last one I saw differed only in that he had six fistulae. The canal was almost all fistulae and there was a lot of local irritation which, if it goes on long enough, will lead to stone formation on the hairs.

Doctor Deming asked about the meatus. It seems generally agreed that the balanitic type of hypospadias is best treated by masterly neglect, because the results of our attempts to overcome balanitic hypospadias have been very unsatisfactory. I am satisfied if I can get a normal-sized meatus placed about in the position of the balanitic type of deformity. Certain it is that the minute you invade tissue of the glans with its erectile tissue and very thin covering, you take on a lot of extra trouble and bleeding. One patient who finally discouraged me was an adult who almost bled to death on two occasions where we had cut the glans. He had transfusion twice. When the smoke cleared away, it had all sloughed and we were back where we started. I quit after that.

LYMPHOBLASTOMA (HODGKIN'S AND SARCOMA TYPE) OF BONE*

With a Report of Three Cases Simulating Primary Malignant Tumor of Bone

BY JACK SPENCER, M.D.,† AND RICHARD DRESSER, M.D.†

LYMPHOBLASTOMA is a primary disease of the lymphatic system usually manifesting itself clinically by enlargement of peripheral, mediastinal, or abdominal lymph nodes. It should be appreciated, however, that the disease may invade any structure of the body. Numerous reports appear in the literature of involvement of the gastrointestinal tract, the central nervous system, and the genito-urinary tract.

The demonstration of bone lesions is becoming increasingly more frequent. Burnam (1926), in a review of 173 cases, found only two with osseous changes (1.1 per cent). In the same year one of us (Dresser) collected ninety-five cases of lymphoblastoma at the Massachusetts General Hospital, only four of which showed bone involvement (4.4 per cent). These four cases all presented large sternal tumors which were clinically obvious. During the next five-year period an additional 149 cases were studied in which particular attention had been paid to the demonstration by roentgen examination of osseous changes. In this series sixteen cases with bone involvement were discovered, an incidence of 10.7 per cent. Uehlinger (1933) reported fifty cases of Hodgkin's disease, forty-eight with postmortem examination, of which seventeen (34 per cent), showed osseous changes. These changes were not all demonstrated antemortem. In a series of 172 cases reviewed by Craver and Copeland (1934) twenty-seven (15.7 per cent), presented bone involvement.

The distribution of bone lesions in order of frequency is as follows: spine, pelvis, sternum, ribs, skull, and extremities. The roentgen picture is usually that of a purely destructive process, less often a combination of bone destruction with hyperplasia, and rarely an osteoplastic change without destruction (Hultén). A diagnosis based on roentgen findings alone will usually be that of malignancy either primary or metastatic, rarely osteomyelitis.

Bone infiltration generally occurs in the advanced stage of the disease after the diagnosis of lymphoblastoma has been established. The osseous changes then present no great diagnostic problem. Occasionally, however, bone is involved early in the course of the disease when there is little or no demonstrable enlargement of the lymph nodes. The correct diagnosis can then be made only by the removal of a specimen for pathological examination. The following is a brief summary of such a case reported in an earlier communication: A man of thirty-four came under observation at the Massachusetts General Hospital presenting a large tumor mass in the posterior parietal region. About six months previously a barber had called the patient's attention to a lump on his head. Physical examination was negative except for the scalp tumor and several very small glands in the cervical region which were thought to be of no significance. Roentgen examination of the skull showed a large defect in the parietal bone. The possibility of a primary new growth was considered, and a biopsy was done which was reported as lymphoblastoma.

This case was included in the publication in 1931 of a series of twenty cases with lymphomatous involvement of bone. Since then we have collected an additional series of forty-one cases. Of the latter group, three presented single lesions in the bones of the extremities which gave rise to the predominating symptoms, and which were erroneously diagnosed primary bone tumor by clinical and roentgen examination.

CASE 1. A white female, aged twenty-four, when first seen gave a history of increasing pain and swelling of the left knee of two years' duration, beginning about the time of termination of a full-term pregnancy. Physical examination showed a hard fixed mass involving the lower end of the left femur. There was no glandular enlargement, and the spleen and liver were not palpable. Laboratory studies showed 9,000 white blood corpuscles with 73 per cent polymorphonuclears, and 80 per cent hemoglobin. A roentgenogram showed a destructive process involving the lower third of the femur with a break in the cortex and periosteal thickening of the shaft. (Figure 1 a, b.) A diagnosis of primary bone tumor was made, most probably Ewing's. Amputation was done and the pathological report was "lymphoblastoma, sarcoma type". One year following amputation, the patient developed a five centimeter gland in the corresponding groin which responded to a moderate dose of high-voltage roentgen rays.

CASE 2. A white female, aged thirty-nine, gave a history of swelling in the left antecubital region of ten weeks' duration. Examination showed a hard fixed swelling of the lower third of the left humerus. There was no enlargement of the lymph glands and the spleen was not felt. The liver edge was just palpable. Laboratory studies showed 3,550,000 red blood corpuscles, 10,650 white blood corpuscles, hemoglobin 55 per cent. Roentgen examination showed a soft tissue mass in the lower third of the

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arm with areas of rarefaction of the lower third of the humerus. The roentgen diagnosis was primary bone tumor. Operation exposed a soft friable mass infiltrating the lower third of the arm and apparently involving the joint. The lower third of the shaft was completely denuded of periosteum. Biopsy from the humerus was reported as "lymphoblastoma". Infection followed the operation making amputation of the arm necessary. The patient later developed pain in the right shoulder, and roentgen examination demonstrated osseous changes in the head of the humerus. The patient gradually failed and died a year later.

FIGURE 1a. Case 1. Irregular destructive process at the lower end of the femur with a break in the cortex and periosteal thickening.

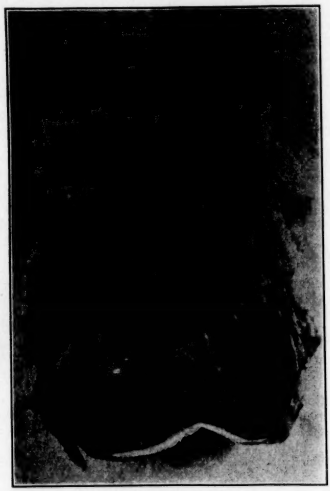

FIGURE 1b. Case 1. A central tumor with necrosis extending through the cortex. The periosteal thickening is well seen.

CASE 3. A white male, aged forty, on first admission gave a history of stiffness and pain in the back of the neck of one year's duration. During the past two months there had been progressive weakness in the right arm and sensory changes in the left hand. The patient was thought to have a spinal cord tumor and lipiodol injection showed a partial block at the level of the second dorsal vertebra. The spleen and liver were not enlarged and there were no palpable glands. Laboratory studies showed 3,910,000 red blood corpuscles, 9,200 white blood corpuscles, 83 per cent hemoglobin, 69 per cent polymorphonuclears, 30 per cent lymphocytes, 1 per cent mononuclears, no eosinophils; Hinton test negative; spinal fluid Wassermann positive once and when repeated at a later date negative. Laminectomy was performed and a specimen of tissue removed for study was reported as "fibrosis and chronic inflammation". The course was uneventful until the patient was seen again six months later with a history of glandular enlargement in the right side of the neck and intermittent pain in the left leg associated with twitching of the muscles of the thigh. The glands in the neck had receded spontaneously. The pain became very severe and incapacitated him for three or four days. There were no genito-urinary or gastrointestinal symptoms. Examination showed a few enlarged glands in the right side of the neck which were thought to be of no significance. A mass was found over the anterolateral aspect of the upper third of the left femur. A roentgenogram of the left femur revealed irregular patches of diminished density about the greater trochanter with thickening of the periosteum extending down to the middle of the shaft. Biopsy was done and reported as "scirrhous lymphoblastoma". This patient was given high-voltage roentgen ray treatment to the bone lesion. Following radiation there was temporary decrease in the size of the mass and relief of pain. The abdominal nodes, however, became involved and the patient failed rapidly. Death occurred eight months after the discovery of the bone tumor.

DISCUSSION

Lymphoblastoma is found to infiltrate the bone marrow in a large percentage of cases which come to autopsy. One may expect to demonstrate bone lesions antemortem by roentgen examination in ten to fifteen per cent of cases. According to Uehlinger, who has reviewed a large series of autopsied cases, there is no such thing as a purely primary lymphoblastoma of the bone. There is invariably lymph gland involvement, although it cannot always be demonstrated clinically. Extension to the bone occurs in two ways: first, direct invasion from adjacent diseased nodes; secondly, a metastatic dissemination presumably via the blood stream. Osseous changes usually occur late in the course of the disease after the diagnosis has been established. Attention has been called to four cases, one previously reported, in which the bone involvement gave rise to the presenting symptoms and in which an erroneous diagnosis of primary bone tumor was made.

In case 1. the evidence was so strongly in favor of primary bone tumor that amputation of the thigh was done. In case 2, the correct diagnosis was made only by biopsy of the bone lesion of the humerus. Infection later followed, making amputation of the arm necessary. Case

3 at first presented a clinical and roentgen picture of a spinal cord tumor. A pathological diagnosis of arachnoiditis was made following laminectomy and removal of a specimen. The patient later developed enlargement of the cervical glands which regressed spontaneously and were not thought to be of clinical significance. Finally a lesion in the left femur was discovered which was thought to be a malignant bone tumor. The correct diagnosis of lymphoblastoma was made by biopsy from the lesion in the femur.

Since lymphoblastoma is always a generalized disease, amputation of an involved extremity is contraindicated as a curative measure. Palliation may be expected from irradiation in some cases, but the bone lesions do not respond so well as the glandular lesions.

It should be emphasized that, in the differential diagnosis of a bone lesion presenting an atypical roentgen picture, the possibility of lymphoblastoma should be considered even though there is no demonstrable enlargement of the lymph nodes.

REFERENCES

1. Burnam, Curtis F.: Hodgkin's disease with especial reference to its treatment by irradiation. J. A. M. A. **87**: 1445 (Oct. 30) 1926.
2. Craver, L. F., and Copeland, M. M.: Changes in bone in Hodgkin's granuloma. Arch. Surg. **28**: 1062 (June) 1934.
3. Dresser, Richard: Lymphoblastoma (Hodgkin's disease) of sternum. Am. J. Roentgenol. **15**: 525 (June) 1926.
4. Dresser, Richard: Lymphogranulomatose der Knochen. (Hodgkinsche Krankheit.) Strahlentherapie **41**: 401, 1931.
5. Hultén, O.: Ein Fall von "Elfenbeinwirbel" bei Lymphogranulomatose. Acta Radiol. **8**: 245, 1927.
6. Uehlinger, E.: Über Knochen-Lymphogranulomatose. Virchows Arch. f. path. Anat. **288**: 36, 1933. (See this article for complete bibliography.)

TWO UNUSUAL TRANSFUSION REACTIONS

BY PAUL A. YOUNGE, M.D.*

IN 1931 Bordley of the University of Pennsylvania reviewed the literature on transfusion reactions and collected seventeen cases characterized by urinary suppression, uremia, jaundice and a high mortality. No cause for the reactions could be determined in most of the cases he reviewed.

In the past three years about 100 blood transfusions have been performed at the Free Hospital for Women and two typical "transfusion reactions", both of which were definitely explained, have been observed.

The purpose of this report is to emphasize the mistakes which led to these nearly fatal accidents and to add the case histories to the literature upon this subject.

The first accident happened as the result of using a very dangerous technique of matching blood which was taught in one of the Boston hospitals. This faulty technique consists of placing a drop of the patient's serum on a glass slide, adding a drop of a saline suspension of the donor's cells and dropping a cover slip upon the mixture. If the two drops are large there is enough space between the slide and cover slip for the red blood cells to move about freely. On the other hand, if very small drops are used the liquid spreads out in a very thin film and the red blood cells are fixed between the two glass surfaces. In this particular case the "cross matching" was observed for one-half hour and checked by another interne. Immediately after the transfusion accident the matching was repeated by the same technique, using the original serum and suspension of cells. Again there was no sign of agglutination in an hour, but with the hanging drop technique agglutination occurred within five minutes. Fortunately some of the patient's blood, which was removed before the transfusion, had been saved and she was found to be a Group IV (Moss). The donor was a Group II.

Eight months later another typical transfusion reaction occurred. Both the patient and the selected donor had been grouped and doubly cross-matched, i.e., the patient's cells in the donor's serum and the donor's cells in the patient's serum. Needless to say, both the grouping and the cross-matching were done by the hanging drop method. The patient and the donor were in Group II (Moss) and no agglutination occurred in either of the "cross-match" tests within half an hour. However, immediately after the transfusion accident all the tests were carefully repeated, with the finding that the donor's cells began to hemolyze in the patient's serum after forty minutes and were completely hemolyzed within sixty minutes.

In the first case citrated blood was pumped into the vein under pressure, taking about five minutes to introduce 300 cubic centimeters. The symptoms commenced in less than a minute after the transfusion was completed, or in about six minutes after the start. In the second case whole blood by the new B-D grooved syringe method was introduced at the rate of about 15 cc. per minute, i.e., three strokes of the syringe per minute. Symptoms developed after 90 cc. of blood had been given—about six minutes after the start.

Both patients were transfused again a few days after the accidents and no symptoms of any type were observed.

No similar case could be found in the literature comparable to the second accident, i.e., a

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transfusion reaction due to hemolysis of the donor's cells which occurred in vitro forty minutes after they were placed in the recipient's serum. Therefore it must be concluded, as the tests were repeated three times, that in this particular instance the reaction was due to the hemolysis of the donor's red blood cells in the patient's blood stream.

CASE REPORTS

CASE 1. This first case is the one to whom blood of the wrong group was given. She had a severe reaction, but made a remarkable recovery following decapsulation of the remaining kidney. She was a thirty-three year old mother of four children, who entered the hospital May 29, 1933, complaining of a draining sinus in a left kidney scar of two years' duration, and pain in the left flank, a nonproductive cough, frequent chills, fever, and rapid loss of strength and weight of three weeks' duration.

Five years before admission she began to have urinary frequency and painful micturition, both of which gradually became worse until two years before admission, when she developed, in addition, pain in the left flank, chills and fever, a pleuritic pain in the left side of the chest and a nonproductive cough. The bladder was extremely irritable. An operation was done at that time, presumably drainage of a perinephric abscess or a nephrostomy. The bladder symptoms cleared up entirely but she was extremely sick for many months and the wound continued to discharge pus up to her admission to this hospital. There was a family history of tuberculosis and the patient had been definitely exposed.

She was the typical picture of chronic sepsis; emaciated, pale and dehydrated, with herpetic lesions on her lips. Her lungs and heart were normal by physical examination and x-ray. In the left upper quadrant there was a tender, rounded mass about three times the size of a normal kidney, which was continuous with an indurated area beneath a scar in the left flank. There was a small sinus in the posterior part of the scar discharging thick, yellow pus.

Laboratory data: hemoglobin 55 per cent Tallqvist; leukocyte count 9000; polymorphonuclears 90 per cent; the urine had a V.S.T. of albumin, a specific gravity of 1.020 and 10 white blood cells per high power field in a centrifuged catheter specimen. An intravenous phenolsulphonphthalein test showed good renal function with 55 per cent excretion the first hour and 10 per cent the second. Intravenous pyelogram disclosed a normal but slightly enlarged kidney on the right with good function and an enlarged kidney on the left with no function. Her temperature swung from 99.6° to 105.6° F.

The clinical diagnosis was a perinephric abscess on the left, secondary to a tuberculous kidney.

On June 3, 1933, the left kidney was removed and a perinephric abscess drained under spinal anesthesia. The kidney showed tuberculosis microscopically. Two days after the operation, because of continued fever, anemia and a dropping white blood count, which was then 6000, a transfusion of 300 cc. of blood was given by the citrate method. Within a minute of its conclusion she complained of sudden abdominal distress and a sensation of distention. Almost immediately she complained that she was suffocating; her face became flushed and then rapidly markedly cyanotic; she was gasping for breath. Oxygen, adrenalin and caffeine relieved her somewhat and within several hours she was quite comfortable. At no time did she complain of lumbar pain.

The next morning her skin and sclerae were deeply jaundiced. She had not voided since just before the transfusion. Two ounces of black urine with a heavy sediment were obtained by catheterization. She had no complaints but her mental faculties were dulled and she was disoriented at times.

During the first five days following the accident she was given intravenously from 2000 to 3000 cc. of 2½ to 10 per cent glucose in normal saline daily. At one time she received 300 cc. of 10 per cent saline intravenously and another time 50 cc. of 50 per cent glucose. Her urinary output varied from 50 to 100 cc. daily. The urine was muddy brown, contained bile and had a specific gravity of 1.010 to 1.013. There was a S.T. of albumin constantly. At first it was loaded with red cells but they disappeared and gradually it became loaded with white blood cells. The urine at no time contained sugar, in spite of the fact that she received intravenous glucose daily.

On the third day she had a mild convulsion which lasted about fifteen minutes. She gradually developed generalized edema, which by the fifth day was so marked that her eyes were shut and the labia minora were so tense that they appeared to be on the verge of bursting. She was practically comatose.

The essential pathologic process in the kidneys following a transfusion reaction apparently is necrosis of the epithelium of the tubules, plugging of the collecting tubules with coagulated protein and blood pigments and marked edema. In the hope that a better circulation of blood through the remaining kidney could be obtained, the capsule of the right kidney was stripped back on the fifth day. This was done under paravertebral nerve block. The capsule was extremely tense. The kidney cortex was a pale, grayish chocolate color. As it was very friable, it was injured in several places for a depth of two to three millimeters. As far as could be determined, there was no possibility of injury to the kidney pelvis or ureter during the operation.

Within twenty-four hours after the decapsulation a profuse watery discharge began to drain from the wound. The volume increased daily for the first seven days, when it amounted to 3100 cc., after which it decreased and finally stopped entirely on the eleventh day. The patient's condition was noticeably improved forty-eight hours after the decapsulation.

Nine days after the transfusion and four days after the decapsulation she was normal mentally and the edema had entirely disappeared clinically. The urine output, i.e., from the bladder, had begun to increase for the past two days and at this time (four days after decapsulation) amounted to 200 cc. in twenty-four hours, making a total of 1065 cc. during the nine-day interval since the transfusion. On this day she was given 500 cc. of citrated blood without any ill-effects and the urine output steadily increased.

She was discharged from the hospital forty-one days after admission with both wounds practically healed. Since then, for two and a half years, she has been carefully followed and has remained in excellent health. The nonprotein nitrogen content of the blood did not return to normal until three months after discharge. Since that time her kidney function and blood chemistry have been well within normal limits.

During the acute stages of the urinary suppression the nonprotein nitrogen content of the blood reached a level of 255 mg. per 100 cc. of blood nine days after the reaction and then gradually receded

to 70 mg. per cent on the day of discharge. The dye excretion test with phenolsulphonphthalein intravenously was 65 per cent in two hours on admission; 0 per cent for at least twelve days after the transfusion—none could be demonstrated in the drainage fluid; 12 per cent in two hours seventeen days after the transfusion; 27 per cent on the day of discharge; and 57 per cent three months after discharge, when her nonprotein nitrogen had returned to normal also. The blood pressure remained between 110-120/60 all during the illness.

By far the most interesting feature of this case was the fact that during the first eleven days following the decapsulation 12,100 cc. of fluid were collected from the wound. What amount actually drained was impossible to determine accurately, because much was lost. During this same interval 1800 cc. of urine was collected from the bladder. It was speculated at the time that the drainage fluid might possibly be a mixture of glomerular filtrate and urine from the collecting tubules escaping through the traumatized cortex, or serum and edema fluid from the wound. However, this could not be definitely determined, as specimens of drainage fluid and urine collected during the same intervals were practically identical except in NaCl content.* From the analyses it appeared that both fluids had gone through the same process. The drainage fluid was much lighter in color and upon standing developed a small pellicle. Otherwise no distinguishing points could be made out. It is regrettable that a biopsy was not done on the kidney at the time of the decapsulation.

CASE 2. The second case is the patient whose serum hemolyzed the donor's red blood cells. She was a forty-five year old mother of six children, admitted February 18, 1934, complaining of metrorrhagia of three months' duration. Pelvic examination was essentially negative. Her hemoglobin was 45 per cent Tallqvist, red blood count 3,250,000 and the blood smear showed normal platelets, marked achromia, anisocytosis and poikilocytosis and the average size of the red blood cells was smaller than normal. A transfusion was decided upon before operation. The patient and her husband were grouped and cross-matched. They were both in Group II (Moss) and their bloods directly compatible.

The transfusion was done by the direct method, using the new B-D grooved syringe. After the patient received 90 cc. she became short of breath and complained of severe pain in the back. She became cyanotic and her skin was cold and clammy. The pulse and blood pressure remained unchanged. Two hours later her temperature was 102.6°, her breathing was easier and the cyanosis less marked.

For the first forty-eight hours she had an intake of 7000 cc. and voided only 300 cc.; she was jaundiced and developed pitting edema over the tibiae. On the second day her nonprotein nitrogen was 66 mg. per cent and the uric acid was 7 mg. per cent. The urine at first contained a large trace of albumin, a few red blood cells and cellular casts. The specific gravity was fixed at 1.009. After three days the urinary output began to increase, the jaundice and edema gradually disappeared and she was transfused again on the fourth day with no reaction. The albumin gradually disappeared from the urine and at discharge, twenty days following the transfusion, her blood chemistry was normal, there was no albumin or casts in the urine and the phenolsulphonphthalein test showed 60 per cent excretion in two hours. She was followed for two months and her urine remained normal. Five days before discharge a dilatation and curettage and application of radium were done for functional flowing.

From our experience with these cases we strongly recommend the use of the hanging drop technique in matching blood and feel that it is very dangerous to say a donor is suitable to use unless the blood matching tests are observed for at least forty-five minutes to an hour.

*Dr. A. V. Bock very kindly performed these chemical analyses.

REFERENCE

Bordley, James: Reactions following transfusion of blood, with urinary suppression and uremia. Arch. Int. Med. 47: 288 (Feb.) 1931.

PUBLIC HEALTH

Operating on a budget of $2,200,000 for public health activities, The Rockefeller Foundation in 1934 engaged in field research on yellow fever, malaria, hookworm disease, tuberculosis, undulant fever, yaws, and diphtheria; conducted yellow fever surveys and control campaigns; carried out projects in malaria control, supported numerous demonstrations of complete public health programs; gave aid to the organization or maintenance of essential services of state and national health departments; and continued its contribution for the training of public health personnel through aid to schools and institutes of hygiene and public health as well as by support of a fellowship program.

As a general result of technical methods, developed in the laboratory, it has become evident that there are two endemic areas of yellow fever in the world. The boundaries of these areas have been approximately established. One of them occurs in Africa and extends from Senegal in West Africa to the upper reaches of the Nile. The other occurs in South America, and occupies practically the whole of the Amazon Valley, reaching for short distances into other watersheds.

It has come to be recognized that yellow fever may exist not only in a mild and almost unrecognizable form, but also in forms not associated with its recognized carrier, the stegomyia mosquito. The disease is transmitted and perpetuated in certain endemic areas by vectors different from the single one (stegomyia mosquito) encountered in Habana, Panama, and epidemic cities in general.—*Information Service of The Rockefeller Foundation.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22181

PRESENTATION OF CASE

A fifty-three year old white American carpenter was admitted complaining of pain in the left foot.

Twenty years before entry the patient had frostbite of both legs. Following this he noted that when exposed to cold his feet were usually more prone to discomfort than his hands. One and a half years prior to admission he noted that his left foot became much colder than his right during the winter. For about three years he had some soreness in the arch of his left foot after walking. This was relieved only by rest. After two years, similar discomfort initiated by walking occurred in the region of the left ankle. Three months later he began to develop cramps in his left calf after walking about 300 yards and this progressed to the point where he was unable to walk more than 100 yards without resting. During this time he also noticed that the skin of his left foot was much cooler than the right. Two weeks before entering the hospital a reddened area appeared between the left fourth and fifth toes. This region became ulcerated, acutely painful and there was some swelling of the foot. A small tender lump appeared in the left groin shortly afterward.

The patient smoked about one package of cigarettes daily. Up to three years ago he had smoked a pipe incessantly.

Five years before admission he sustained a head injury. Since that time he had dizzy sensations when reclining on his left side and the vision in his left eye was markedly impaired.

Physical examination showed a well-developed and nourished man in no discomfort. The left pupil was slightly larger than the right and did not react to light or distance. The heart and lungs were negative. The blood pressure was 145/88. The left lobe of the prostate was slightly enlarged, irregular, rather firm, but not tender. The left foot was cool and pale except for a faint bluish area measuring 2 by 5 centimeters which extended back from the dorsum of the fourth and fifth toes. Between the two toes was an ulcerated crack which was markedly tender. Dorsalis pedis and posterior tibial pulsations were not felt and the popliteal was quite weak on this side. On the right side the dorsalis pedis was present but the posterior tibial was weak. Upon elevating the left foot it blanched in one minute and when lowered a flush appeared only after two minutes. There was a scaly, silvery skin lesion on the dorsum of both hands over areas measuring 2 by 4 centimeters each.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The hemoglobin was 90 per cent. A blood sugar was 111 milligrams per cent.

X-ray examination of the left foot showed no evidence of variation from the normal. The right leg and foot showed no evidence of calcification of the vessels. There was a small bony projection from the lateral and anterior surface of the middle shaft of the right tibia which was interpreted as an osteochondroma.

On the second hospital day a low left thigh amputation was performed.

DIFFERENTIAL DIAGNOSIS

DR. LELAND S. MCKITTRICK: Three years ago this fifty-three year old American carpenter began to have pain in the arch of his left foot after walking. He was unrelieved by arch supports, the pain was then felt in the ankle, and later in the calf of the leg, always after effort, and always relieved by rest. An ulceration then appeared between the toes. He was admitted to this hospital. The examination showed the absence of a palpable pulsation in the vessels to the foot and a diminished pulsation in the popliteal artery. His foot blanched on elevation and there was more or less rubor when it was dependent. There was nothing in the history or physical examination to suggest involvement of the vessels to any of the other extremities.

This is a characteristic picture of a man with progressive obliterative arterial disease. This, to my mind, limits the differential diagnosis to a very few lesions; namely, thromboangiitis obliterans, arteriosclerotic gangrene, and diabetic gangrene. The latter is, for practical purposes, excluded by the absence of sugar in the urine and a blood sugar of 111 milligrams per 100 cubic centimeters. It would seem to me that the diagnosis rests between early gangrene, due to thromboangiitis obliterans or that due to an arteriosclerotic obliteration.

Thromboangiitis obliterans may occur in any race. It is almost entirely limited to men. The age of onset of symptoms is usually under forty, occasionally between forty and forty-five, and only rarely fifty or over. We do occasionally see it, however, in men beyond fifty. The symptoms are usually of long duration, more frequently over three years than under. The disease usually starts in one extremity, frequently

involves a second and occasionally all four. X-rays are usually negative for any evidence of calcification of the arteries. Only rarely does the disease show such definite progression as in this case. This has been one of definite progression from onset to admission to the hospital, ending with amputation through the lower third of the thigh. This procedure is rarely necessary in thromboangiitis obliterans, in fact, only about 3 per cent of the cases in this hospital have had amputation done at this level. The great majority of cases left the hospital either without amputation of any kind or with the loss of one or more toes. Failing the latter a Gritti-Stokes amputation is usually done. In most instances there is evidence of involvement of at least one other extremity before so much involvement of one.

The average of patients with arteriosclerotic gangrene is sixty-five years. On the other hand, we do see a group of patients in the sixth decade who have gangrene secondary to an arteriosclerotic process. The duration of symptoms may be as long as three years but is usually under two years, and frequently under one. The disease in many instances runs a progressive course, ending in amputation through the lower third of the thigh and in only a small percentage of cases is amputation of a digit successful. X-ray usually shows evidence of calcification but there is the occasional case where the x-ray is negative.

From the above résumé of the two diseases, it is obvious that it is impossible for me to make a definite diagnosis in this particular case. This man is older than the usual patient we see with thromboangiitis obliterans. His story is somewhat shorter than we usually find, and his disease is distinctly more progressive than in many instances. On the other hand, there is nothing either in the history or physical findings not entirely consistent with the occasional patient whom we see with thromboangiitis obliterans. As for arteriosclerosis, he is well below the usual age at which this disease is found, but on the other hand, he is not too young. Although calcification of the vessels can usually be demonstrated by x-ray, its absence in this case does not exclude arteriosclerosis. However, because of the fact that this man's symptoms began at the age of fifty, because they have been definitely progressive from the beginning with intermittent claudication, then early gangrene, admission to the hospital, and amputation through the lower third of the thigh, without evidence of involvement of any of his other extremities, I favor the diagnosis of arteriosclerosis.

DR. HENRY H. FAXON: There is one point that may be worth making although it really paraphrases what Dr. McKittrick has already said. Namely, the diagnosis in this case preoperatively was of more than pedantic interest because in the cases of Buerger's disease we are often free to go ahead with a local procedure on the foot even when the dorsalis pedis artery cannot be felt. Whereas in the arteriosclerotic group, with absence of peripheral pulsations, if we do any surgery, we are usually forced to do a radical operation.

The rest of the case has been covered with only one addition; namely, the infection between the toes in all probability gained entry through a fissure in the skin caused by epidermophytosis which is so often the case.

DR. SOMA WEISS: I would like to bring out one point. This patient is reported to have suffered from frostbite twenty years ago. Gruber and other German authors have pointed out the interesting fact that the histologic picture of the vessels in frostbite is exactly or almost exactly identical with thromboangiitis obliterans. You find the same intimal changes and the same cellular reaction described in thromboangiitis. I should like to ask Dr. McKittrick if there is any study in the literature on which one could estimate the ultimate results of frostbite. It is perfectly possible that frostbite is not an indifferent episode in predisposing the patient to vascular complications.

DR. MCKITTRICK: I do not know. I have not seen any but I have not covered the literature with that in mind. It is quite possible it may be there, but I saw no reference to it.

PREOPERATIVE DIAGNOSIS

Thromboangiitis obliterans, left leg.

DR. LELAND S. MCKITTRICK'S DIAGNOSIS

Arteriosclerotic gangrene.

PATHOLOGIC DIAGNOSIS

Thromboangiitis obliterans.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: A great deal of the confusion in this group of cases rests at the pathologists' door, in that we are not reliable enough in our own differential diagnoses, even after amputation has been performed and we have had a chance to study the vessels, to give the clinicians the help that they need. There is a considerable group of cases in about this age group, the late forties and early fifties, where I find it almost impossible to decide whether we are dealing with thromboangiitis obliterans or not. Those cases often show very significant amounts of arteriosclerosis and the histologic picture of Buerger's disease is not to my mind sufficiently diagnostic so that I am able to recognize it with certainty if arteriosclerosis is also there. This case, however, happens to be one in which we were not presented with that difficulty. There is no evidence of

arteriosclerosis whatever, and the findings are entirely consistent with uncomplicated thromboangiitis.

This is the posterior tibial artery with an elastic tissue stain. You can see the internal elastic lamina which is practically unreduplicated. The lumen of the vessel is completely filled by an old organized thrombus and that thrombus contains a large number of canalizing vessels. The media shows no trace of calcification. We have perhaps thirty sections from various vessels in this leg and neither atheroma nor medial calcification could be demonstrated in any of them. That lesion on the screen is perfectly characteristic of a healed stage of Buerger's disease.

I have selected another vessel for comparison. This is the anterior tibial artery and again you see the lumen filled with thrombus, one rather large and numerous small canalizing vessels, and, moreover, what also is very characteristic of Buerger's disease, involvement of the venae comites. The veins show fibrous thickening of the intima and the adventitia of all the vessels is distinctly thicker than normal, matting them all together. In order to find any acute disease we have to go higher up in the vascular tree. This is the upper end of the popliteal artery, filled with fresh thrombus, much of which, however, has dropped out of the section, but along the upper margin you can see it is being actively organized and one canalizing vessel has already developed. In one respect the case differs from the average in that the media of the vessel shows an unusually marked inflammatory infiltration. Large numbers of new blood vessels are penetrating it and they are surrounded by lymphocytes and particularly by monocytes in considerable numbers. We really have a panarteritis here, not merely an endarterial process.

The relationship to frostbite is always an interesting one to discuss and is well illustrated by this case. A very large proportion of cases of Buerger's disease do give a history of frostbite and a good many people, particularly the Germans, suggest an etiologic relationship. It has in general always seemed to me more reasonable that the patients get their frostbite because they already have an impaired circulation from Buerger's disease. In a case of this sort, however, where the frostbite occurred twenty years before his vascular symptoms showed any sign of progression, such a theory seems improbable. The case could certainly be cited as evidence for the converse point of view which has recently received support from the experimental work of Leriche and Fontaine*. They believe that a local thrombotic process can reflexly provoke extensive vascular spasm and even secondary arteritides in distant vessels.

*Leriche, R. and Fontaine, R. Presse Méd. 43: 1953 (Dec. 4) 1935.

DR. FELIX DEUTSCH: During the war in Austria we had a great deal of experience with just this sequence of events. I am inclined to believe that people who develop frostbite are fundamentally endowed with very unusual vascular systems to start with.

DR. MALLORY: That is possible.

CASE 22182

PRESENTATION OF CASE

A seventy-five year old American machine shopworker was admitted complaining of lower abdominal pain.

For about one year before entry the patient had had occasional abdominal distention. During this time he had transient attacks of nausea lasting for only a fraction of a minute and there was also increasing constipation although no details were noted. About three and a half weeks before entry he began to have a gnawing angry pain just below the umbilicus which radiated to the right flank and into the left subcostal region. The pain was persistent and relieved only by medication prescribed by a local physician. At about the same time the constipation became more pronounced and he resorted to cathartics. As a result his stools became loose and watery. Several were questionably tarry in appearance. The appetite was poor and there was no nausea. On the day before entry the patient vomited once and once again just before coming to the hospital. There had been a weight loss of about twelve pounds during the current illness.

For several years the patient had occasional sharp pain radiating across the chest which his physician had called acute indigestion. Nine years before entry a doctor had told him he had diabetes, but he had never had any treatment. Forty-two years ago he was operated upon for empyema and sixteen years later for an umbilical hernia.

Physical examination showed a well-developed and nourished elderly man. The lungs were clear and the heart was normal. The blood pressure was 150/90. The peripheral arteries were thickened. The abdomen was soft and there was slight tenderness in the epigastrium. Peristalsis was active. A rectal examination showed tarry stools.

The temperature, pulse, and respirations were normal.

Examination of the urine showed a specific gravity of 1.020. There was a trace of albumin and a green precipitate with Benedict's reagent. No diacetic acid was found. The sediment contained many white blood cells, some of which were clumped. The blood showed a red cell count of 4,200,000, with a hemoglobin of 80 per cent. The white cell count was 5,000. A phe-

nolsulphonephthalein test showed 20 per cent excretion of dye in two hours. A nonprotein nitrogen of the blood was 67 milligrams. Gastric contents were coffee colored and gave a one plus reaction to the guaiac test. Free acid was 60 units and the total acid 90.

An x-ray examination showed a large stomach, high in position, which filled without evidence of defect. No barium could be forced through the pylorus. Deep stomach peristalsis was visible and after half an hour a small amount of barium had trickled through the pylorus. There was a 1.5 centimeter area of ulceration about one centimeter beyond the completely filled portion of the stomach. The duodenum was incompletely filled.

Constant gastric drainage and intravenous glucose infusions were instituted with marked improvement in the patient's symptoms. On the fifth hospital day an abdominal operation was performed.

Differential Diagnosis

Dr. Richard H. Wallace: The gnawing pain in the region of the umbilicus in a younger person should certainly suggest something in a Meckel's diverticulum. In a man over seventy I think it is extremely unlikely that he would have lived to that ripe old age without having some trouble before that from a Meckel's diverticulum. Gnawing pain in that region suggests most strongly a lesion in the region of the pylorus or duodenum.

His pain apparently had no relation to meals and was not relieved by food or alkalies.

The stools were questionably tarry in appearance. We have a suggestion of bleeding in the upper gastrointestinal tract. We have no suggestion in the history of cramp-like or intermittent pain to suggest obstruction either in the small or large bowel. There has been a weight loss of about twelve pounds during the current illness. I believe that means loss of appetite and inadequate intake of food.

We might wonder with pain in the region of the umbilicus if he might have some recurrence of his hernia; but I believe that is extremely unlikely after sixteen years, and the type of pain is not suggestive of anything we might blame on a hernia.

"The abdomen was soft and there was slight tenderness in the epigastrium." Again we have indication of trouble in the region of the stomach.

"A rectal examination showed tarry stools." This presents more evidence of bleeding in the upper gastrointestinal tract.

We have some evidence of concentrated urine. There is no mention of any urinary symptoms. The rectal examination does not mention any abnormality of the prostate. A man of seventy-five might well have some urinary infection which probably has nothing to do with his chief complaint.

We have reason to believe that there is some gastrointestinal bleeding. There is evidence of very little anemia. Perhaps that is not a true picture in the light of the possible dehydration.

There is evidence of some impairment in the function of his kidneys. I believe it is quite likely that dehydration plays a considerable part in the high nonprotein nitrogen.

"Free acid was 60 units and the total acid was 90." I interpret that as being rather high normal for the stomach.

Dr. Aubrey O. Hampton: This patient was apparently examined in the horizontal position. No films or fluoroscopy were made in the usual upright position. The stomach is unusually high. It runs across transversely. Here is the diaphragm. It is the type of stomach with which the roentgenologists have considerable difficulty ruling in or out disease, but I take it from the fluoroscopic note that the stomach was normal. This I think is the ulcer that was described and it would be quite impossible for me to tell whether it was in the duodenum or pylorie valve. This appears to be the first portion of the duodenum here. They said it did not fill so I have to assume that that is not the duodenum although it looks like it. If that happens to be the duodenal cap and this another ulcer, this ulcer is in the region of the ampulla of Vater.

Dr. Wallace: It is impossible to tell the relation, of course.

Dr. Hampton: I cannot be sure but I should say that the fluoroscopic note would be more accurate than my opinion here.

Dr. Wallace: The report is a little vague; probably because of the impossibility of telling about that.

Dr. Hampton: They apparently did not see the duodenum at all during the fluoroscopic examination and this film was taken later.

Dr. Wallace: Even so, in exploring a case of this sort with the lesion in one's hand it is extremely difficult to tell on which side of the pylorus it may be.

Now we have a seventy-five year old man complaining of gnawing pain in the region of the umbilicus, with a loss of twelve pounds of weight and an unknown lesion in the region of the pylorus. One of his major complaints was abdominal distention and constipation. Constipation is a fairly common symptom in malignant lesions of the stomach. We have had two or three cases that were sent into the hospital with a diagnosis of carcinoma of the colon and proved to have been carcinoma of the stomach. We have persistent gnawing pain relieved only by medication. It is much more suggestive of malignant disease than benign ulcer. The vomiting is of no help one way or the other. Loss of weight is, I believe, merely due to poor ap-

petite and impairment of food intake. The past history has no bearing on the present situation, I believe. The urinary and blood findings, as far as the chief complaint is concerned, are merely evidence of dehydration. The free acid of 60 units is offhand more in favor of ulcer. It is interesting to note how many cases of known malignancy of the stomach have free acid. Dr. Parsons two or three years ago reported a series from this hospital of 230 cases and of that group twenty-eight per cent had free acid in the stomach and it is especially interesting that of all the patients with free acid in the stomach over eighty-five per cent were right at the pylorus. I do not believe that that rules out carcinoma of the stomach.

DR. HAMPTON: I think if you take the fluoroscopic note you would have to assume that the patient had a duodenal ulcer. As I see those films there is one other thing that is suggestive. This shadow here. Dr. Holmes, what do you think about it? Does that appeal to you as a lesion.

DR. GEORGE W. HOLMES: I think the lesion is in the duodenum and outside the stomach and that there is an ulcer present but whether it is benign simple ulcer or carcinoma, I do not know. I think it is outside the stomach.

DR. HAMPTON: If this is a lesion, carcinoma of the pancreas has to be considered.

DR. WALLACE: In spite of the x-ray evidence and in spite of the high acid I believe the most likely diagnosis is carcinoma of the stomach. but I think it is quite possible that it is a benign ulcer. I should say that my first choice was carcinoma of the stomach.

DR. TRACY B. MALLORY: Any comment?

DR. WILLIAM B. BREED: It is either malignant or nonmalignant, is it not? Leaving the x-ray out, it seems to me that there is no real evidence that this is a malignant lesion. I am willing, in a sporting way, to take the other side and say that this is an obstructing bleeding ulcer in the duodenum. It happens more often than the textbooks tell us that older people have obstructing, bleeding, benign ulcer with a short history of symptoms.

DR. ROBERT S. PALMER: I should think that clinically it would be just the opposite of what Dr. Breed said. He is an old fellow with one year's history of indigestion and a twelve pound loss in weight. It seems to me that obstructing lesion would have to be carcinoma of the stomach.

DR. EARLE M. CHAPMAN: The kidneys may enter into this picture. Here is a man who has vomited twice and two days after entry the nonprotein nitrogen is 67 and he put out twenty per cent of the dye in two hours, which is one-third of the amount that he ought to put out. These findings are compatible with mild uremia. He is an old man and his blood pressure is 150/90, and a certain amount of vascular Bright's disease may have been present, leading to uremia and death.

DR. BREED: That brings up another question, whether he was observed long enough before operation was undertaken.

DR. HOLMES: If we can believe the x-ray findings and the films, the lesion is in the duodenum and not in the stomach.

DR. TRACY B. MALLORY: Dr. Kranes, did you see the patient?

DR. ALFRED KRANES: I did not see him until the day before he died. He was moribund at that time. The blood pressure had dropped and he was in shock. As far as the diagnosis of the lesion goes, I would agree with Dr. Breed that it was probably benign.

CLINICAL DIAGNOSES

Carcinoma of the stomach.
Bronchopneumonia.

DR. RICHARD H. WALLACE'S DIAGNOSIS

Carcinoma of the stomach.

ANATOMIC DIAGNOSES

Duodenal ulcers.
Operative incision: Posterior gastroenterostomy.
Bronchopneumonia.
Pulmonary edema, bilateral.
Arteriosclerosis, aortic, coronary and renal, marked.
Cardiac hypertrophy.
Nephritis, chronic vascular.
Pleuritis, chronic fibrous, bilateral.
Prostatic hyperplasia, lateral and median lobes.
Prostatic calculi.
Double ureter, bilateral.
Operative scar: Empyema incision, left.

PATHOLOGIC DISCUSSION

DR. MALLORY: I do not believe I can tell you what the house service really thought about it. In one place the diagnosis was put down as carcinoma of the stomach and in another as ulcer of the duodenum. On the death certificate it was cancer, the preoperative diagnosis was duodenal ulcer and the postoperative diagnosis was duodenal ulcer. I suspect there was a division of opinion on the wards.

He was operated on by Dr. Arthur W. Allen, who found an indurated area definitely beyond the pylorus and did a posterior gastro-

enterostomy, following which the patient very rapidly went into collapse and died in about thirty-six hours.

The autopsy showed two ulcers of the duodenum and a negative stomach. Bearing out Dr. Chapman's idea, he had very atrophic kidneys, weighing only 160 grams, which showed a fairly marked degree of vascular nephritis. He also had a severe grade of sclerosis of all his coronary branches and patchy fibrosis throughout the myocardium without any definite infarcts, so that I think a little uremia and a good deal of myocardial insufficiency and some postoperative shock probably all contributed to his death.

DR. HAMPTON: Where was the second ulcer? Was it low?

DR. MALLORY: No, both were within a centimeter of the pyloric ring. One was a centimeter and the other a centimeter and a half in size, each with undermined shaggy edges, with a great deal of fibrosis at their bases. There was no perforation.

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CANCER RESEARCH

FIFTEEN years ago laboratory research in cancer had reached a point where it was known that cancer could be caused at any time; (1) by repeated applications of tar to the skin of the mouse, (2) by transplantation of cancer cells from one animal to another of the same species, (3) by breeding special lines of mice that inherit a tendency to special cancer, and (4) by inoculating fowl with cell free filtrates of the Rous sarcoma. Clinically, of course, other irritants and conditions were known factors in cancer such, for example, as the overuse of tobacco, repeated sunburns and radium and x-ray. The lines of research developing from the four experimental facts given above have developed an amazing and interesting group of data, but for the most part these lines have tended to keep themselves distinct from each other. The studies of tar have culminated in brilliant researches begun in London and continued elsewhere and have led to the isolation of many pure chemicals such as dibenzanthracene, that are carcinogenic. The transplantation experiments have made progress, but it has not been so striking. The heredity experiments, especially those of Little and his co-workers, have put this experimental tool on a relatively firm footing. The filtrable virus experiments have been very difficult to understand or explain when compared with the other lines of cancer research.

Now there comes a report from the London Cancer Research group headed by Kennaway and confirmed in Philadelphia that pulls together three of these lines of research into an extraordinary synthesis that opens up great hopes for the future. These workers, in brief, have found that a cancer may be initiated by dibenzanthracene. It may then be transplanted serially through ten different animals thereby diluting the original irritant injected to a point certainly greater than one to one billion, of its original concentration and well below any level that could be identified chemically. At this point they then produce an ultrafiltered extract of the tumor and find that this extract has the power of initiating the same kind of cancer when injected into a new host. This brilliant experiment means that we must postulate that at some time in the course of the growth of cancer a new product is formed by the cancer which is of a size smaller than the size of the smallest visible bacteria and infinitely smaller than the size of a cancer cell, and which may or may not be a living virus which has the property of reproducing in a new host the cancer from which it was derived. This specific reproduction of a special kind of cancer puts it in a different class from the class of substances chemically isolated which produce cancer, but in the same class as the substance transmitting the Rous sarcoma of fowls. The irritant substances, such as the dibenzanthracene mentioned above, produce any kind of cancer of special cell type according to the cells on which they act. They may be either sarcomas, carcinomas, or leukemias according to circumstances.

The development of these lines of research to the point where knowledge is available that is useful in the prevention of human cancer has not yet been reached to an important degree, but with these experimental tools this knowledge may develop almost before we realize it. One would not have to be particularly sanguine to say that actually now the promised land in this field of endeavor is in sight and we have only a few more rivers to cross.

A LIFE TABLE FOR THE TOTAL UNITED STATES

For the first time in the history of our country, according to the March statistical bulletin of the Metropolitan Life Insurance Company, it has become possible to present a life table based on the actual mortality statistics for all of the 48 States of the Union, Texas, the last State to be admitted to the Death Registration Area, having qualified in 1933. An expectation of life at birth of 61.26 years is shown by this table for the total population, both sexes combined. The actual division of this expectation gives to white males 60.86 and to white females 64.40 years.

In 1901, the first year for which an official life table for any considerable part of the United States was constructed, the expectation was only 49.24 years; in fact, the expectation of life at birth in 1901 was less than the expectation of life at the age of 17 in 1933. Picturing these changes in another way, we find that according to mortality conditions prevailing in 1901, one quarter of the children born would have died before the age of 25; in 1933 it would take 52 years for this quarter to have died. In 1901 one half of the children born would have died by age 58, and three quarters by age 74; in 1933 these corresponding ages had increased to 68 and 78 years respectively.

Comparing our present figures with other countries in 1933, we find that English males had a birth life expectancy of 58.7 years, and German males of 59.8 years, as against our own white male's expectancy of 60.86 years. The corresponding figures for English, German and American females are 62.6, 62.6, and 64.40 years respectively. Italy, in 1930-1932 had expectations of life at birth of 53.8 years for males and 56.0 years for females. The life tables of only Norway, Sweden, Denmark and Holland, of European countries, are as favorable as ours, while New Zealand still exceeds us with an expectation in 1931 of 65.04 years for males and 67.88 years for females.

THE COMPENSATION OF CITY PHYSICIANS

In the letter of Dr. Bagnall which appears on page 899 of this issue, an important subject is presented. It is certainly undignified for physicians to have to agree to the maintenance of medical service under the control of municipalities at the rates set forth in this letter.

The weight of professional opinion should be brought to bear on this subject to the end that justice may be accorded the doctors who are filling these positions.

All interested persons should immediately give such facts as may be pertinent in this matter to Dr. Bagnall in order to help in promoting the necessary reforms.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Kickham, C. J. E. A.B., M.D. Harvard University Medical School 1927. Assistant Urologist, Carney Hospital. Assistant Visiting Urologist, Pondville Cancer Hospital at Norfolk. Associate Consulting Urologist, Quincy Hospital. Address: 12 Bay State Road, Boston, Mass. Associated with him is

Welch, Norman A. M.D. Tufts College Medical School 1926. Visiting Physician, Carney Hospital. Junior Visiting Physician, Boston City Hospital, Fifth Service. Instructor in Medicine, Tufts College Medical School and Boston University School of Medicine. Address: 520 Commonwealth Avenue, Boston, Mass. Their subject is Metastatic Abscess of the Prostate. Page 867.

Chute, Richard. A.B., M.D. Harvard University Medical School 1927. F.A.C.S. Assistant Urologist, Massachusetts General Hospital. His subject is A Warning About Acidification Therapy in Cases of Renal Infection Due to the Proteus Bacillus. Page 869. Address: 352 Marlborough Street, Boston, Mass.

Cabot, Hugh. A.B., M.D. Harvard University Medical School 1898. F.A.C.S. Consulting Surgeon, Mayo Clinic. His subject is The Treatment of Hypospadias in Theory and Practice. Page 871. Address: Mayo Clinic, Rochester, Minnesota.

Spencer, Jack. M.D. University of Virginia Department of Medicine 1931. Roentgenologist, Palmer Memorial Hospital. Assistant Roentgenologist, Collis P. Huntington Memorial Hospital. Research Fellow in Medicine, Harvard University Medical School. Address: 695 Huntington Avenue, Boston, Mass. Associated with him is

Dresser, Richard. Ph.B., M.D. Johns Hopkins University School of Medicine 1921. Roentgenologist, Collis P. Huntington Memorial Hospital and Pondville Hospital at Norfolk. Visiting Roentgenologist, Massachusetts General Hospital. Address: 695 Huntington Avenue, Boston, Mass. Their subject is Lymphoblastoma (Hodgkin's and Sarcoma Type) of Bone with a Report of Three Cases Simulating Primary Malignant Tumor of Bone. Page 877.

Younge, Paul A. M.D. Harvard University Medical School 1931. Assistant Pathologist and Surgeon to Out-Patients, Free Hospital for Women, Brookline. His subject is Two Unusual Transfusion Reactions. Page 879. Address: 101 Bay State Road, Boston, Mass.

The Massachusetts Medical Society

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472 Commonwealth Ave., Boston, Mass.

BREECH DELIVERY 1.

Since it is practically impossible to condense the important features of breech delivery into the space allowed for one presentation in this column, the present discussion will be divided into two parts: the first concerned with the principles underlying the management of breech labor, and the second describing the technic of extraction.

Delivery of the infant by the breech results in about four per cent of all labors and in approximately three per cent of labors at term. This mechanism is notorious for the high stillbirth and neonatal death rates which are associated with it, and calls for the best possible judgment and skill if the birth of a living and uninjured infant is to be attained. The best results can be secured only with the realization that breech delivery is a major obstetrical procedure, and that the inexperienced physician should call a well-trained consultant for the purpose. At the Boston Lying-in Hospital a series of 711 uncomplicated breech deliveries of mature babies has resulted in a crude mortality of 9.5 per cent, which, when corrected by exclusion of macerated and grossly malformed infants, can be reduced only to 6.9 per cent.

Several reasons suggest themselves as contributing to a high risk to the fetus:

1. The inherent mechanism of breech birth. It must be remembered that this is composed of three subsidiary mechanisms: those of the breech (or hips), of the shoulders, and of the aftercoming head, respectively. Passage of the breech through the pelvis and over the perineum does not indicate that the shoulders will necessarily follow normally; delivery of the shoulders does not necessarily forecast normal expulsion of the head.

2. Prolapse of the umbilical cord, either evident or concealed, is five times as common in breech as in cephalic delivery.

3. There is a definite tendency for the placenta to separate prematurely during the second stage of labor after the breech, body, and shoulders, constituting the main bulk of the fetal mass, have passed through the cervix, leaving the aftercoming head inside the uterus.

4. The infant may be fatally traumatized by unskilled or improperly timed efforts at extraction.

Any policy or technic of breech delivery, to be successful, must be based upon the following principles:

1. Adequate and accurate antepartum examination.

2. Essential hospitalization of the patient for delivery, either by bringing her to a hospital, or by bringing full hospital facilities to her at home.

3. Constant personal supervision of the patient throughout labor.

4. The presence, at delivery, of a competent anesthetist, preferably a physician with obstetric training.

5. Ability of the obstetrician to perform successfully the operation of breech extraction when the indication arises.

These principles may be reasonably translated into the following rules:

1. The conformation of the maternal pelvis must be thoroughly studied by external and internal mensuration according to the usual clinical standards. Even moderate contraction of the pelvis in a primigravida is much more serious to the infant when it presents by the breech than when it presents by the vertex, as in the former case a test of labor to determine a moot point of cephalopelvic disproportion is obviously out of the question. X-ray measurement of the fetal head, when available, combined with clinical measurement of the pelvis, under an anesthetic when necessary, is of great value in the borderline case, and may indicate clearly the advisability of delivery by abdominal cesarean section.

2. The patient should be delivered in a hospital, whenever possible, since such an environment makes possible a rapid change in policy should emergency arise.

3. The obstetrician should be in constant personal attendance on the patient from the time active dilatation of the cervix starts until delivery has been accomplished.

4. A competent anesthetist-assistant should be immediately available during this time, and should be in actual attendance during the entire second stage.

5. The fetal heart rate should be recorded at least every fifteen minutes during the first stage with membranes unruptured; immediately after rupture of the membranes; every five minutes after rupture; and after each pain during the second stage.

6. The obstetrician should scrub and maintain surgical asepsis from the time the breech passes through the os until delivery is complete. From this moment on, should there be any delay in expulsion at any time, or

*A series of short selected articles by members of the Section is being published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

should the fetal heart vary in rate outside the normal limits of 120 to 160 beats per minute, he should extract the fetus at once under full surgical anesthesia.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 3:

Berkshire

Thursday, May 7, at 4:30 P.M., at the House of Mercy Hospital, Pittsfield. Subject: Lung Diseases (Surgical) — (a) Empyema. (b) The Value of Surgery in Chronic Lung Disease; Tuberculosis, Lung Abscess, etc. Instructor: J. W. Strieder. Melvin H. Walker, Jr., Chairman.

Bristol North

Wednesday, May 6, at 7:30 P.M., at the Morton Hospital, Taunton. Subject: Pediatrics (Surgical) — Abdominal Disease in Childhood. Instructor: J. W. Chamberlain. Arthur R. Crandell, Chairman.

Bristol South (New Bedford Section)

Friday, May 8, at 4:00 P.M., at the St. Luke's Hospital, New Bedford. Subject: Diseases of the Liver — Surgical Problems in Diagnosis of Acute Disease of Gall Bladder and Liver. Instructor: H. M. Clute. Harold E. Perry, Chairman.

Franklin

Wednesday, May 6, at 8:00 P.M., at the Franklin County Public Hospital, Greenfield. Subject: Syphilis — Its Complications and Treatment. Instructor: A. W. Cheever. Halbert G. Stetson, Chairman.

Middlesex North

Friday, May 8, at 7:00 P.M., at the Lowell General Hospital, Lowell. Subject: Immunology—Latest Developments in Immunization. Smallpox, Typhoid, Measles, Scarlet Fever, Diphtheria, Whooping Cough and Infantile Paralysis. Instructor: G. W. Anderson. Leonard C. Dursthoff, Chairman.

Norfolk

Friday, May 8, at 8:30 P.M., at the Norwood Hospital, Norwood. Subject: Pediatrics (Medical) — The Neonatal State. Instructor: S. H. Clifford. H. B. C. Riemer, Chairman.

Worcester (Milford Section)

Wednesday, May 6, at 8:30 P.M., at the Milford Hospital, Milford. Subject: Diseases of the Liver — Surgical Problems in Diagnosis of Acute Disease of Gall Bladder and Liver. Instructor: E. L. Young, Jr. Joseph I. Ashkins, Sub-Chairman.

APPLICATION FOR MEMBERSHIP IN THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

New England Journal of Medicine,

I am sending the name of a candidate for admission to the Massachusetts Medical Society with the names of the five sponsors according to the resolution adopted at the last Council meeting.

The application and letters have been sent to Dr. Fitz.

Applicant — William Patten McHugh, M.D., 48 Margin Street, Peabody.

Sponsors—Dr. George W. Ewing, 95 Main Street, Peabody; Dr. Harris S. Pomeroy, Peabody; Dr. John F. Walsh, 16 Chestnut Street, Peabody; Dr. S. Chase Tucker, Peabody; Dr. John F. Bradley, 40 Washington Street, Peabody.

April 25, 1936. R. E. STONE, M.D., *Secretary.*

MISCELLANY

SOLOMON EVEREST, 1760-1822

BY ARTHUR H. WARD, M.D.

Assistant Physician, Boston Dispensary Nerve Department

Most of the biographies of the early American physicians concern their contribution to the knowledge and advancement of their calling, with but passing comment on their other interests. The following biography is that of a man who probably contributed nothing to the then known lore of medicine, although the available records show that he was a conscientious and skillful physician, a power for good in his little community, and an active participant in town, state and medical society affairs. Such a man was Solomon Everest, who practiced in the quiet little town of Canton, Connecticut, located about fifteen miles west of Hartford.

He was born in Salisbury in the northwest corner of Connecticut on April 11, 1760. Little can be learned concerning his father and mother, other than their names. Of English stock, his immediate forbears came to Saybrook and then moved up into the state, settling in Salisbury. His father, David Everest, was married to Margaret Ferrie of Sheffield by the Rev. Jonathan Hulbart on July 11, 1754. Of this union there were four children, Solomon being the youngest. Eight days after the youngster's birth, his mother died, and, after waiting a "decent" length of time, his father married again, this time to a Lois Jackson, by whom he had ten children.

Probably as soon as Solomon was old enough, and most probably to relieve the burden at home, where there were so many mouths to feed, he journeyed the twenty miles to Winchester, where he became apprenticed to Dr. Josiah Everitt and learned the rudiments of his future calling. Also, while there, he wooed and won the youngest sister of his preceptor, Amelia, to whom he was married May 15, 1782.

Soon after their marriage Dr. Everest and his bride moved to that part of Farmington which is now Avon, where he began his medical practice, but

in 1796 he transferred his activities to Canton, where he remained until his death in 1822. Abiel Brown's General History of the Early Settlers of West Simsbury (now Canton) states, "As a physician and surgeon he had but few equals and educated a number of young men who became eminent in their profession. The public placed so much confidence in his professional skill, it was rare that further aid was solicited, even in extreme cases, under his management."

His name appears as one of the original members of the Hartford County Medical Society. Becoming a member of the Connecticut State Medical Society in 1793, a year after its inception, he took an active part in its proceedings, and was given the degree of M.D. by the Society in 1814. He was one of the leading citizens of the town, the incorporation of which was due largely to his effort. He was a member of the convention that formed the Constitution of the State of Connecticut in 1818; in that convention his name is found as voting for and against many of the amendments offered to the proposed constitution, and in the final vote for the constitution as amended he cast his vote in the negative because of his opposition to that section providing that the General Assembly be held alternately in Hartford and New Haven. He was deeply religious but without enthusiasm and austerity, strictly orthodox in the sentiments of the denomination to which he belonged, and for twenty years officiated as a deacon of the First Congregational Church of Canton.

The chief interest in writing this biography, however, lies not in what he did during his life, but rather in the influence he had after his death. He died on April 3, 1822, and when his will was read, it was found he had bequeathed one-half of his estate amounting to $30,000 in the following manner: of four equal parts, two went to the American Board of Congregational Foreign Missions, one part to the Missionary Society of Connecticut, and one part constituted a trust fund, the income of which was to be used "for the purchase of Bibles, religious tracts, etc., for distribution; for the support of the Domestic Missions in this State; or for the education of indigent, pious youth for the gospel ministry; to any and all of the above purposes, as shall be thought most expedient by a Committee which the General Association of the State of Connecticut shall from time to time appoint for that purpose." The executor took seven years in settling the estate, and at that time turned over $4,000 to the Committee of the Association. This became known as the Everest Fund. In 1843 his widow died, and her last will and testament was couched in the same identical language, and added $3,500 to the Fund. The trustees of the Everest Fund early realized the need of educating needy young men for the ministry, so that during the last century the foresight of a comparatively unknown physician has enabled many men to enter the ministry and carry the Christian religion to all corners of the earth: to China, India, Bohemia (now Czechoslovakia) and the north- and south-west portions of the United States. One who received aid from this fund later became President of Oberlin College; another became the much-beloved Professor of Mental and Moral Philosophy at Amherst; while still another, an American-born Italian, became prominent in carrying on the religious education of the numerous Italians in Connecticut, thus enabling them to become better American citizens. These are but a few of the more than four hundred who have received a helping hand from a man who realized the necessity of educating young men for the purpose of carrying his ideals to others.

LYNN CANCER CLINIC*

BY WILLIAM T. HOPKINS, M.D.
Visiting Surgeon, Lynn Hospital

The Lynn Cancer Clinic is one of the state-aided, diagnostic, cancer clinics, which seeks to offer opportunity for competent diagnosis and advice concerning cancer to all who may desire it, irrespective of their financial condition. The clinic is conducted in coöperation with the State Department of Public Health, under the management of a committee of five local physicians, appointed by the Lynn Medical Fraternity. The funds for operating the clinic are chiefly derived from legislative appropriation to the Department of Health of the Commonwealth. The Lynn Community Fund Association usually makes an annual allotment to the clinic. Occasional small contributions are made by grateful patients.

The chief expenditures are for salaries to the social service worker and clerk, for expense of follow-up visits, occasional special diagnostic service, and for office supplies.

The Lynn Hospital furnishes, without charge, a meeting place for the clinic with equipment for examinations, including the services of nurses; also, upon request of the clinic, free x-ray diagnostic service for those unable to pay.

The professional staff of the clinic consists of eighteen doctors assigned to regular terms of service and, upon call, the entire staff of specialists at the Lynn Hospital, all giving their services without compensation.

The clinic has been in continuous operation since April, 1927, and meets each Friday morning at ten o'clock at Lynn Hospital. The group system has been in effect for the past year. By this plan, three doctors see each patient before a diagnosis is recorded. Anyone may come to the clinic as a patient and no charge for consultation has ever been made in this clinic up to the present. It is most desirable that patients come upon the recommendation of the family doctor, either accompanied by the doctor, or with a letter from him containing a brief history of the case. If the doctor accompanies the patient, he is invited to join the consultation upon his patient. If a person is found to be afflicted with cancer, the family doctor is so notified at once by letter and the patient is sent back to his care.

*Delivered at a meeting of Lynn Cancer Coöperative Committee, at Lynn Y. M. C. A. Hall, February 21, 1936.

The social service worker follows up all cases of cancer, attempting to assure adequate treatment at the earliest possible date, and by follow-up efforts keeps in touch with the patient thereafter.

The committee realizes the magnitude, and the seriousness of the cancer problem, the responsibility for dealing with which rests by no means solely upon the medical profession, but, on account of the great and increasing prevalence of the disorder, is a matter which concerns the entire community.

The hopeful feature of the situation lies in the fact that the traditional opinion, that all cancers are hopelessly incurable, is a mistaken one. Of the truth of this statement, I hope to be able to convince you from a brief account of the experience of this clinic.

By microscopic examination of a bit of tissue, a competent pathologist can tell not only whether the specimen is cancer, but also the kind and grade of malignancy. This is useful from the standpoint of prognosis and in deciding how extensive an operation must be undertaken.

In order to determine how many cancers appear to be cured, it is necessary first to be certain how many are, in fact, cancers. To be as certain as possible upon this point the clinical diagnosis of cancer by three of the clinic staff doctors is reinforced by the report of the pathologist upon the specimen removed. Reports for this clinic usually are made by the Cancer Commission of Harvard University, and are checked against the clinical diagnosis, with which they must agree for the final record. The average duration of life of a cancer patient, after the appearance of symptoms, is about two years, if untreated, or inadequately treated.

From the date of opening of the clinic to January 1, 1936, the clinic has examined 2,841 patients. Of these, 629 have been found to have cancer. As of January 1, 1936, the clinic is able to show 109 cancer patients living five years or more after treatment and free from evidence of the disease. These are sometimes referred to as five-year cures, this period being chosen because freedom from recurrence for this length of time usually means permanent freedom from recurrence. It seems to us that these figures speak for themselves. It should furthermore be realized that all of these 109 five-year cures come from cases visiting the clinic prior to January 1, 1931, and in all probability many seen since that date and included in the total of 629 are also on their way to become five-year, and we hope, permanent cures.

The one point upon which we are utterly dissatisfied is the long period of delay by the patient after discovery of symptoms, before consulting a physician. This should be counted in days, whereas it may now be reckoned in terms of months. Practically all our cures are of cases seen early in their course. After the disease has established secondary deposits of cancer cells, the situation is less hopeful. Patients are coming to the clinic not much earlier in the course of the disease than was the case eight or nine years ago.

The clinic wishes gratefully to acknowledge the splendid coöperation of the Lynn Hospital which has made possible such success as the clinic has achieved, and especial emphasis should be placed upon the public spirit and unfailing courtesy of the press which always publishes our bulletin as news. A considerable proportion of the clinic cases has come to us from newspaper publicity and it cannot fail to be a source of satisfaction to the publishers to be made aware that their generosity in this regard has resulted in the saving of some lives.

No attempt has been made to estimate the percentage of cancers which may be regarded as curable, but it seems to have been demonstrated that not all cancers are inevitably fatal.

This, in brief, is the evidence which the Lynn Cancer Clinic is able to lay before you.

"OUR COMMON DRINKING CUPS"

BY CHARLES P. BOTSFORD, M.D.,
Retired Health Officer, Hartford, Conn.

Many years ago public sentiment recognized the danger of the transference of disease through what was called the common drinking cup, and laws were passed requiring the use of bubbler fountains or single service containers in certain public places. The repeal of the Eighteenth Amendment and the accompanying increase in places of public entertainment have forcibly brought to our attention the fact that in many of our public eating and drinking places, utensils and especially glasses, receive so slight an amount of cleansing between services that they are as important a means of spreading those diseases in which the germs are taken into the body through the mouth, as was the old-fashioned drinking cup.

Some of our social customs greatly contribute to this condition. Custom requires that beer be served in a wet glass, and the bartender usually takes a glass just returned to the counter, rinses it in water which may have been changed only three times a day, fills it with beer again, and starts it on its way. The mucus from the mouth is so tenacious that a rinse in warm, or even fairly hot water even containing soap or other cleansing agent, has almost no effect upon it, and whatever germs have been left by previous users are passed on to those who follow. A wet glass may look quite clean, but the same glass dried presents a different appearance, frequently showing not only finger prints of previous users, but a gray rim of mucus around the edge. Nothing short of the application of considerable force by a brush or similar means and the use of really hot water and soap, or still better one of the modern cleansers, will remove this deposit. The emphasis of state and local health regulations has been on the equipment and general cleanliness of eating and drinking places in the belief, perhaps mistaken, that proper equipment always produces the desired result, possibly also because it is easier

to check on equipment than on performance. Thus, the standard regulations stress the protection of food and drink from dust and flies, proper refrigeration, a safe water supply, convenient toilets, and in most cases facilities for heating water, and the equipment necessary for washing utensils in the traditional household way. The inspector can check all these things and the general appearance of cleanliness on his rounds, and if it scores well, the place is considered satisfactory. The requirement of a standard minimum of equipment has done much in a general way to increase the safety of places selling food and drink. We no longer have frequent epidemics of typhoid due to a poor water supply or carried to the food by flies, and outbreaks of food poisoning from the use of spoiled materials are now rare.

The use of laboratory methods to check the efficiency of dishwashing from the standpoint of the removal of the really dangerous germs on the dishes has only recently been applied to utensils in places of public entertainment, although it has been used in the milk industry for some years, and standards of reasonable cleanliness for milk bottles have been established. The examination of more than five hundred glasses from taverns, soda fountains and restaurants by the laboratory methods used for milk utensils shows that only 8 per cent of glasses from taverns, 22 per cent from soda fountains, and 35 per cent from restaurants met the standards of cleanliness established for milk bottles. Included in this group were those restaurants using machine washing. Of these 61 per cent were satisfactory. Of course, this does not mean that all the germs found are harmful. Fortunately, most of them are not. This is simply a method of accurately testing dishwashing efficiency, and when a few eating places uniformly wash their utensils so clean that no germs can be cultivated from 95 per cent of them, it shows that results considerably better than the standard are at present not attainable. Moreover, other tests made show that the kinds of germs found vary with the time of year, and are similar to those found in the throats of sick people in the community at that particular time, so that the conclusion is inescapable that these utensils might be an active means of spreading these diseases.

We believe that the public drinking place is so closely tied up with our social life that it cannot and should not be done away with, so that the question remains, what can be done to make it as safe as possible?

One solution would be the use of paper or s milar single service utensils, but paper is a poor substitute for glass or china, and few of us would wish to use it, except in a special emergency. The alternative seems to be the general recognition of the fact that because of their use by so many people, and because many places which appear very clean, have very poorly washed dishes, methods of cleansing of a much more thorough nature than those in use in an ordinary household must be developed.

Public health authorities must, with the help of the laboratory, work out practical means of dishwashing which will be efficient, and the public must be educated to demand their use. Each official inspection will then include the taking of a sample glass and spoon or fork for laboratory analysis. At present it appears that those places using machine dishwashing are much safer than those washing in other ways.

DR. LAHEY ADDRESSES THE PHILADELPHIA COUNTY MEDICAL SOCIETY

Dr. Frank H. Lahey gave the Sixth Annual J. Chalmers Da Costa Foundation Oration before the Philadelphia County Medical Society at the Bellevue-Stratford Hotel, Philadelphia, on Wednesday evening, April 22. Dr. Lahey's subject was The Management of Biliary Tract Disease.

FIVE-YEAR RESIDENT INFANT MORTALITY RATE IN BOSTON

1930-1934

MARGARET H. TRACY, *Executive Secretary*
BOSTON HEALTH LEAGUE

The tables appended show the resident births and infant deaths from 1930 through 1934 in the city of Boston and the five-year average infant mortality rate. The resident infant mortality rate for the city each year during this period is as follows:

1930	66.6
1931	59.4
1932	57.5
1933	58.9
1934	53.3

The greatest decline in the total city resident rate occurred in 1931. The decline in 1932 was offset by the rise in 1933, but in 1934 there was again an appreciable decrease which is especially encouraging in view of the fact that there was an increase in the infant mortality rate for the country as a whole. "Practically the entire region lying east of the Mississippi River was adversely affected. Of the twenty-six states comprising this area, twenty-one recorded higher infant mortality figures in 1934 than in 1933. Only five eastern states, Massachusetts, New York, Rhode Island, Vermont and West Virginia, succeeded in maintaining or improving their records of the previous year. Of these, Massachusetts made the best showing, having reduced its 1933 infant mortality by nearly 5 per cent in 1934." * Boston reduced its infant mortality rate by 9 per cent, a much greater reduction than that for the state as a whole.

The provisional infant mortality rate for Boston, issued by the City Health Department January 1, 1936, for 1935 is 50.7, which again shows a decline. In view of continued unemployment and the large proportion of families receiving relief, physicians

and official and voluntary agencies giving prenatal and obstetrical care are to be commended.

Examination of the five-year average infant mortality rate by Health and Welfare Areas indicates that East Boston, Charlestown, South End, South Boston and Roxbury are the five areas where the rate is above that for the city as a whole. In general, these areas are congested, have low rentals and a high proportion of families on relief, but these economic factors alone do not account for the higher rates. Economically, the West End, which has had an exceptionally low rate for the five years, and the North End, where the rate is nearly equal to the city rate for this period, closely parallel the five health and welfare areas where the rates are higher. The amount and quality of prenatal care, the quality of delivery, and the care of the new born infant in the areas having a high infant mortality rate might well be studied to determine what might be done to lower the infant mortality rates in these areas further. Thus the city rate might be still further reduced.

*Metropolitan Life Insurance Company Statistical Bulletin, September, 1935.

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932-1933-1934

A Five-Year Average by Health and Welfare Areas

	Births						*Deaths*						
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934	Total	5-Year Average Infant Mortality Rate
Total	13,894	12,975	13,092	12,179	11,792	63,842	926	772	753	717	629	3,797	59.5
						East Boston							
A-1	109	92	87	78	65	631	6	4	3	5	5	23	36.5
A-2	79	87	73	83	70	392	1	6	5	6	5	23	58.7
A-3	179	136	168	158	142	783	9	9	9	6	6	39	49.8
A-4	119	99	111	92	116	537	7	5	6	6	5	29	54.0
A-5	162	150	163	139	131	745	18	10	7	8	8	51	68.5
A-6	139	148	117	114	106	624	15	13	8	9	6	51	81.7
B-1	98	80	93	61	63	395	5	6	3	4	4	22	55.7
B-2	93	83	92	88	76	432	13	6	6	4	6	35	81.0
B-3	59	71	66	78	68	342	4	9	5	1	5	24	70.2
B-4	85	86	74	75	67	387	4	5	3	3	1	16	41.3
B-5	188	196	183	160	142	869	21	13	15	16	5	70	80.6
Total	1,310	1,228	1,227	1,126	1,046	6,137	103	86	79	68	56	383	62.4
						Charlestown							
C-1	47	33	32	40	41	193	5	7	3	6	2	23	119.2
C-2	77	53	82	68	70	350	9	5	8	4	6	32	91.4
C-3	94	83	84	89	80	430	13	9	6	5	4	37	86.0
D-1	34	21	25	27	23	130	2	—	—	7	3	12	92.3
D-2	27	28	22	22	29	128	2	1	—	2	3	8	62.5
D-3	58	53	70	38	58	277	3	8	3	2	1	17	61.4
D-4	60	60	67	55	57	299	4	5	6	1	5	21	70.2
E-1	93	76	89	80	68	406	4	7	6	10	4	31	76.4
E-2	53	47	44	52	45	241	3	10	2	2	3	20	83.0
Total	543	454	515	471	471	2,454	45	52	34	39	31	201	81.9
						North End							
F-1	105	103	101	101	88	498	14	10	5	7	4	40	80.3
F-2	117	111	112	95	92	527	9	4	4	4	6	27	51.2
F-3	26	28	20	18	22	114	2	3	1	1	3	10	87.7
F-4	143	132	128	115	98	616	10	12	3	4	3	32	51.9
F-5	81	71	99	74	51	376	5	7	4	4	1	21	55.0
F-6	23	16	8	8	5	60	—	1	—	1	—	2	33.3
Total	495	461	468	411	356	2,191	40	37	17	21	17	132	60.2

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932-1933-1934

A Five-Year Average by Health and Welfare Areas

(Continued)

	Births						Deaths						
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934	Total	5-Year Average Infant Mortality Rate
West End													
H-1	138	160	128	119	124	669	7	8	10	10	5	40	59.8
H-2	48	52	65	51	49	265	3	—	3	4	2	12	45.3
H-3	35	30	31	33	34	163	2	1	1	3	1	8	49.0
H-4	88	92	98	84	64	426	4	3	8	4	3	22	51.6
K-1	66	65	60	58	67	316	1	—	1	3	1	6	19.0
K-2	33	41	32	33	30	169	2	1	1	—	1	5	29.6
Total	408	440	414	378	368	2,008	19	13	24	24	13	93	46.3
Back Bay													
K-3	15	15	9	10	12	61	—	—	3	—	2	5	82.0
K-4	110	96	96	110	115	527	4	9	4	5	3	25	47.4
K-5	9	21	15	14	12	71	—	—	—	—	1	1	14.1
I-3	12	25	25	18	17	97	2	2	3	—	2	9	92.8
J-4	33	38	54	18	43	186	3	4	5	—	—	12	64.5
J-5	72	64	70	72	81	359	4	5	5	2	3	19	52.9
S-1	78	78	79	62	79	376	9	7	2	7	6	31	82.4
Total	329	337	348	304	359	1,677	22	27	22	14	17	102	60.8
South End													
G-1	33	28	35	44	33	173	1	2	1	—	1	5	28.9
G-2	53	39	50	32	44	218	4	2	1	2	6	15	68.8
G-3	6	6	7	4	5	28	—	—	—	—	1	1	35.7
G-4	10	8	8	10	8	44	—	—	2	—	—	2	45.5
I-1	64	39	49	49	60	261	8	2	2	2	2	16	61.3
I-2	110	97	94	100	84	485	12	8	4	5	6	35	72.2
I-3	76	67	76	78	59	356	7	3	2	8	8	28	78.7
I-4	70	61	60	71	71	333	3	8	6	4	7	28	84.1
J-1	53	51	46	41	41	232	2	3	2	1	3	11	47.4
J-2	28	35	24	34	26	147	3	2	1	1	—	7	47.6
L-1	45	56	62	42	53	258	1	1	3	5	4	14	54.3
L-2	78	81	63	70	60	352	10	8	6	6	6	36	102.3
L-3	61	58	67	63	89	338	10	6	10	12	8	46	136.1
L-4	38	35	49	38	37	197	3	2	—	2	3	10	50.8
L-5	36	44	42	55	42	219	4	6	4	3	1	18	82.2
L-6	47	53	49	48	56	253	4	3	1	7	3	18	71.1
Q-1	49	39	50	34	40	212	4	2	1	3	3	13	61.3
Total	857	797	831	813	808	4,106	76	58	46	61	62	303	73.8
South Boston													
M-1	43	56	52	48	44	243	5	3	8	1	7	24	98.8
M-2	73	65	76	76	75	365	13	7	5	4	5	34	93.2
M-3	41	52	47	60	40	240	5	2	12	1	6	26	108.3
M-4	47	40	36	50	36	209	4	3	1	5	4	17	81.3
N-1	171	157	137	156	138	759	13	12	19	8	10	62	81.7
N-2	102	98	83	77	71	431	6	3	—	4	7	20	46.4
N-3	99	69	80	61	79	388	4	3	6	2	6	21	54.1

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932-1933-1934

A Five-Year Average by Health and Welfare Areas

(Continued)

	Births						*Deaths*						
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934	Total	5-Year Average Infant Mortality Rate
N-4	120	92	83	107	119	521	7	3	1	6	13	30	57.6
O-1	170	151	159	145	153	778	22	12	13	8	11	66	84.8
O-2	71	97	73	88	90	419	7	7	6	6	7	33	78.8
O-3	83	87	81	86	75	412	9	9	5	8	9	40	97.1
O-4	32	29	36	34	28	159	1	3	1	2	3	10	62.9
P-1	124	93	108	93	90	508	9	9	6	8	5	37	72.8
Total	1,176	1,086	1,051	1,081	1,038	5,432	105	76	83	63	93	420	77.3
						Roxbury							
Q-2	149	108	106	106	84	553	14	10	5	14	5	48	86.8
Q-3	88	72	77	61	71	369	7	3	10	1	5	26	70.5
Q-4	97	75	95	76	77	420	4	6	5	6	6	27	64.3
R-1	147	146	131	132	122	678	4	7	12	17	10	50	73.7
R-2	80	68	84	84	75	391	6	13	5	6	8	38	96.7
R-3	81	76	74	76	98	405	2	9	5	6	10	32	79.0
S-2	51	60	50	39	51	251	4	3	7	5	5	24	95.6
S-3	123	97	110	119	100	549	16	7	6	7	6	42	76.5
S-4	79	80	79	68	74	380	6	4	7	6	6	29	76.3
S-5	90	92	85	88	67	422	5	3	4	—	3	15	35.5
S-6	84	73	65	47	56	325	3	12	3	4	3	25	76.9
U-1	119	104	136	119	103	581	9	3	6	12	6	36	62.0
U-2	101	129	117	105	99	551	8	5	8	10	5	36	65.3
U-3	116	98	87	86	89	476	4	6	8	9	3	30	63.0
U-4	143	137	124	119	128	651	10	6	12	7	8	43	66.1
U-5	185	144	143	137	152	761	11	6	9	7	4	37	48.6
U-6	204	214	197	181	173	969	8	4	7	8	4	31	32.0
V-1	94	90	84	87	88	443	8	5	5	4	—	22	49.7
V-2	129	112	112	117	113	583	11	6	11	5	3	36	65.2
Total	2,160	1,975	1,956	1,847	1,820	9,758	140	118	135	134	100	627	64.3
						Dorchester North							
P-2	110	94	99	89	84	476	10	7	4	4	4	29	60.9
P-3	65	68	70	66	77	346	7	4	6	6	2	25	72.3
P-4	86	71	91	78	69	395	4	3	9	3	5	24	60.8
P-5	100	78	78	77	80	413	9	4	7	3	1	24	58.1
P-6	69	77	60	74	78	358	9	5	2	4	4	24	67.0
T-1	91	84	101	80	92	448	9	4	5	3	3	24	53.6
T-2	168	116	125	124	118	651	8	11	8	6	5	38	58.8
T-3	164	137	143	141	108	693	21	11	8	10	10	60	86.6
T-4	174	171	181	146	131	803	13	7	8	15	9	52	64.8
T-5	173	231	197	162	135	898	8	7	17	8	6	46	51.2
T-6	104	101	87	85	87	464	8	6	7	3	3	27	58.2
T-7	178	201	171	181	160	891	7	9	5	6	3	30	33.7
T-8	177	160	136	160	124	757	10	7	3	10	4	34	44.9
T-9	111	79	99	87	92	468	8	3	5	5	1	22	47.0
T-10	76	41	60	47	49	273	3	2	3	2	1	11	40.3
X-1	199	158	194	148	154	853	11	13	10	6	6	46	53.9
Q-5	161	182	144	136	135	758	8	4	16	10	7	45	59.4
Total	2,206	2,049	2,036	1,881	1,773	9,945	153	107	123	104	74	561	56.4

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932-1933-1934

A Five-Year Average by Health and Welfare Areas

(Continued)

	Births						Deaths						
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934	Total	5-Year Average Infant Mortality Rate
						Dorchester South							
X-2	219	197	192	172	184	964	12	9	9	5	6	41	42.5
X-3	185	192	187	199	183	946	18	12	12	13	7	62	65.5
X-4	229	236	220	187	201	1,073	9	13	11	12	13	58	54.1
X-5	322	313	311	256	237	1,439	19	11	12	11	13	66	45.9
X-6	319	329	322	308	261	1,539	11	16	14	11	16	68	44.2
Total	1,274	1,267	1,232	1,122	1,066	5,961	69	61	58	52	55	295	49.5
						Jamaica Plain							
V-3	78	67	98	79	67	389	4	6	5	7	3	25	64.3
V-4	102	86	88	74	80	430	4	2	5	4	1	16	37.2
V-5	148	121	129	108	134	640	8	5	9	8	11	41	63.1
V-6	161	125	145	147	130	708	8	2	8	7	9	34	48.0
W-1	215	208	192	198	188	1,001	10	11	10	7	5	43	43.0
W-2	133	125	135	105	98	596	5	6	4	3	6	24	40.3
Total	837	732	787	711	697	3,764	39	32	41	36	35	183	48.6
						Hyde Park							
Z-1	289	293	307	273	289	1,451	11	19	16	14	15	75	51.7
Z-2	165	143	135	141	112	696	6	5	7	5	3	26	37.4
Total	454	436	442	414	401	2,147	17	24	23	19	18	101	47.0
						West Roxbury							
W-3	185	179	180	135	176	855	7	4	10	5	8	34	39.8
W-4	187	187	191	184	175	924	11	13	13	9	8	54	58.4
W-5	147	134	143	141	129	694	10	4	7	6	2	29	41.8
W-6	279	269	303	295	215	1,361	11	12	13	10	10	56	41.1
Total	798	769	817	755	695	3,834	39	33	43	30	28	173	45.1
						Allston-Brighton							
Y-1	128	112	119	109	96	564	17	10	1	5	3	36	63.8
Y-2	121	101	113	111	107	553	6	6	6	15	4	37	66.9
Y-3	277	238	245	225	262	1,247	9	9	11	14	7	50	40.1
Y-4	169	156	149	120	115	709	9	10	3	7	3	32	45.1
Y-5	350	337	341	300	312	1,640	18	13	13	11	13	68	41.5
Total	1,045	944	967	865	892	4,713	59	48	34	52	30	223	47.3
B-6	2	—	1	—	2	5							

NOTE: B-6 includes all islands in Boston Harbor.

Since January 1, 1932 the City Health Department has supplied the Boston Health League with births and deaths by Census Tracts.

CORRESPONDENCE

CITY PHYSICIANS' COMPENSATION

April 16, 1936.

Editor, *New England Journal of Medicine,*

The matter of City Physicians' compensation has received some consideration by the Haverhill City Committee of the Essex North District Medical Society. It was found that the gross yield in Haverhill to City Physicians is 14½¢ per visit, the other cities in this district vary from 6½¢ to 46¢ per visit. The mayor of Haverhill in preparing his annual budget asserted that the costs were too high and must be pared down. The physicians on the staff of the Haverhill Municipal Hospital contributed more than $80,000 worth of service last year.

The principle of continuing City Physicians on this basis has been disapproved by the Massachusetts Medical Society and by the Commissioner of Public Health of Massachusetts. I should like to stimulate, through your columns, the interest of City Physicians throughout the state in studying the scope and compensation of their work with the object of obtaining figures which might be helpful, and finding a satisfactory solution for the evils inherent in this branch of medical care. I should be glad to hear from any City Physicians who are interested.

Very truly yours,

281 Main Street, E. S. BAGNALL, M.D.
Groveland, Mass.

THE TREATMENT OF SYPHILIS WITH ARTIFICIAL FEVER

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

April 22, 1936.

Editor, *New England Journal of Medicine,*

The State Departments of Mental Diseases and Public Health have installed two Kettering Hypertherm units at the Boston Psychopathic Hospital for the treatment of syphilis with artificial fever. The Boston Dispensary has delegated a nurse to operate one of the units. These two machines have been in operation a year for the treatment of selected cases.

It is now possible to offer the service of these machines to the medical profession of this State so far as treatment days are available. Physicians having patients who may benefit from fever therapy are invited to confer with Dr. Harry C. Solomon, Director of Therapeutic Research at the Boston Psychopathic Hospital, who will also represent the Boston Dispensary in the admission of patients to be treated in one of the units.

A considerable number of treatment days are available for the treatment not only of neurosyphilis but for other forms of the disease, such as, interstitial keratitis, optic nerve involvement, other eye conditions due to syphilis, gummata, syphilitic neuritis, or any clinically active systemic syphilis except cardiovascular.

All patients referred for fever therapy must be accompanied by full records of history, diagnosis, serology, treatment, complications, reactions and the result of a spinal fluid examination. If a lumbar puncture has not been done, the patient must agree to one before treatment is begun.

The physician who refers the case may be asked to report the condition of the patient and any subsequent treatment at intervals during the following five years, or will be expected to permit the representatives of the Psychopathic Hospital or Boston Dispensary to acquire such information as may be necessary from the patient and the patient's record.

Yours truly,

HENRY D. CHADWICK, M.D.,
Commissioner of Public Health.
WINFRED OVERHOLSER, M.D.,
Commissioner of Mental Diseases.

ROUND TRIP TO KANSAS CITY BY AEROPLANE

Editor, *New England Journal of Medicine,*

The round-trip fare to and from Kansas City via the Transcontinental and Western Air, Inc., is $142.55. However, by buying $500 worth of scrip the trip is reduced another fifteen per cent. This scrip need not be used by one person, but may be used by several persons. In other words, if several persons desiring to travel by air (and save 48 hours) would get together, the trip would cost them around $121.00. This amount is only slightly more than a round trip by rail. I, myself, wish to go by air, and there must be others who plan to do so likewise. Would it not be possible for you to verify the above facts, perhaps make it generally known, and enable us to benefit by that extra fifteen per cent?

EARL R. LEHNHERR, M.D.
472 Commonwealth Avenue, Boston,
April 20, 1936.

PRO DOMO SUA

Editor, *New England Journal of Medicine,*

My attention has been called to the 1935 *Year Book of General Surgery* in which Professor Graham after a relatively lengthy quotation from my paper "Is Total Thyroidectomy Rational as a Method of Treatment?"[1] has made the following remark in parentheses: (According to the 1934 *A. M. A. Directory*, the author is an ophthalmologist. It is to be feared such comments will not clarify the situation materially. "Shoemaker stick to your last" is obviously as apropos today as when first uttered by Apelles over 2,000 years ago. Ed.)

I have been overcome by the honor of being quoted by so eminent a surgeon. My best dreams could not reach so far. However, the remark in the parentheses has spoiled the broth. Time and again I am reminded that I am an ophthalmologist, and that the subject of Total Thyroidectomy is none of my business.

There was a time when a jeweler prescribed glasses (not a shoemaker), and a barber posed as a surgeon and a dentist. But that time has gone by. Now

we all get medical education, and we are intelligent enough to be able without using inappropriate sayings and comparisons to accept or reject arguments dealing with a scientific problem.

I regret that Professor Graham did not have time, space, or willingness to quote those parts of my paper which were based on the work of the great surgeon Kocher. Had he done so, he might not have said that "such comments will not clarify the situation materially".

The subject of Total Thyroidectomy is not a technical surgical problem. It is of interest to the cardiologist, surgeon, general practitioner, neurologist, psychiatrist, physiologist, pathologist, endocrinologist and, *horribile dictu!* even to the ophthalmologist. It is known that the thyroid and the pituitary, if diseased, sometimes may affect the eye.

If Professor Graham read the last paper of Clark, Means and Sprague[2] and my letter,[3] he could see that time has proved, strange as it may seem, the contentions of the ophthalmologist to be correct. One thing is clear to me: *The bright perspectives of three years ago have dwindled to a selection of a very small group, and the Almighty alone knows how to select this group;* Clark, Means and Sprague are reluctant to say that they know.

Consequently, the number of wrongly selected cardiac patients, if the procedure is continued, will swell the number of unfortunate victims. The Peter Bent Brigham Hospital (a pioneer in this field) has performed only three operations during the last year.[4] The Massachusetts General Hospital has performed no total thyroidectomies during the past six months.[5] It is significant.

REFERENCES

1. Canad. M. A. J. **31**: 502 (Nov.) 1934.
2. New Eng. J. Med. **214**: 277 (Feb. 13) 1936.
3. New Eng. J. Med. **214**: 552 (March 12) 1936.
4. See 2, P. 294.
5. See 2, P. 293.

O. R. LOURIE, M.D.

485 Commonwealth Avenue,
Boston, Mass.

RECENT DEATHS

LINES—ERNEST HOWARD LINES, M.D., the retired chief medical director of the New York Life Insurance Company, died April 17, 1936, at the home of his daughter, Mrs. Sargent H. Wellman, of Topsfield.

Dr. Lines was born in East Otto, New York, in 1859, and was a graduate of the College of Physicians and Surgeons of New York.

During the war, he served with the American Ambulance Field Service and later, becoming interested in the education of the wounded French soldiers, was director of the Quai de Billy School conducted by the Union des Colonies Etrangeres and received the decoration as Chevalier of the Legion d'Honneur.

BALLOU—AMBROSE ROCHE BALLOU, M.D., of 280 Neponset Avenue, Dorchester, Massachusetts, died suddenly December 4, 1935, aged fifty-four.

Dr. Ballou was born in Quincy, Massachusetts, and acquired his medical education at the Baltimore Medical College, graduating therefrom in 1905. He settled in Dorchester where he practiced up to the time of his death. His memberships included the Massachusetts Medical Society which he joined in 1907.

His widow, Mrs. Katherine G. Ballou; a daughter, Alice Noel Ballou, and three brothers, John R. and Arthur C., both of Quincy, and the Rev. Marcian L. Ballou, of Kearney, Nebraska, survive him.

GALE—GEORGE WASHINGTON GALE, M.D., of 68 Lincoln Avenue, Saugus, Massachusetts, died April 21, 1936. Dr. Gale was born in Exeter, N. H., ninety-nine years ago. He was active in the practice of medicine until two years ago.

After graduating from Phillips Exeter Academy in 1850, and the Berkshire Medical College in 1861, Dr. Gale served as a Civil War surgeon with a naval assignment. After his discharge from war service, he practiced in Saugus and Lynn until he retired two years ago.

Dr. Gale had held membership in the General E. W. Hinks Post 95, G. A. R., acting as its secretary. He was also a member of the Massachusetts Medical Society and the Masonic order. In April 1930, a bronze medallion was presented, by the New England Medical Center, to Dr. Gale as the second oldest family physician in New England.

RUSSELL—EDWARD M. RUSSELL, M.D., aged sixty-eight, a retired ear and nose specialist of 38 Berkeley Street, Springfield, Massachusetts, died in that city, April 20, 1936, after a short illness.

He was born in Springfield, graduated from Holy Cross College in 1890 and from McGill University Faculty of Medicine in 1901. Dr. Russell is survived by two brothers, Dr. Simon J. Russell, and Mr. Thomas S. Russell, both of Springfield; two nieces and five nephews.

OBITUARY

A TRIBUTE TO DR. FRANCIS GEORGE CURTIS

Dr. Francis George Curtis died in Ashfield, Mass., on April 7, 1936, in his seventy-ninth year, having practiced medicine in Newton for nearly fifty years.

His father, George William Curtis, was an extraordinarily brilliant man. At an early age he was a member of the famous Brook Farm Colony at West Roxbury, he was the Editor of *Harper's Weekly* and for many years the Editor of the "Easy Chair" of Harper's Magazine; he was one of the early Abolitionists, one of the Founders of the Republican Party, wrote several noteworthy books, and was considered one of the best orators of his day.

His mother, Anna Shaw, was a sister of Robert Gould Shaw, whose monument by St. Gaudens, is opposite our State House.

Curtis attended St. Paul's School at Concord, N. H., graduated from Harvard with the class of 1879, and took his medical degree at the College of Physicians and Surgeons (Columbia) in 1883. In 1887 he settled in Newton and at one time acted as Superin-

tendent of the Newton Hospital. In 1894 he was appointed Chairman of the Newton Board of Health, a position he held for forty-two years. In this work, Dr. Curtis made a national reputation. His single-handed fight to compel milk dealers to furnish clean milk to Newton, thus markedly reducing the infant mortality, his common-sense innovations concerning fumigation, and his insistence that children were safer in school, during epidemics, than playing on the streets, or congregating in playgrounds, were a few of the outstanding accomplishments of his work, which gained him the name of being one of the most progressive health officers in the country.

In the Newton Medical Club, Dr. Curtis had a host of friends, and was always an enthusiastic attendant at its summer outings.

We, the members of the Newton Medical Club, wish to record our appreciation of Dr. Curtis as a man, as a physician, and as a friend, and take this means to convey our deep sympathy to his widow and children.

EDWARD A. ANDREWS, M.D.,
ALVAH C. CUMMINGS, M.D.,
EDWARD MELLUS, M.D.,
Committee.

Resolution adopted by Newton Medical Club, April 13, 1936.

NOTICES

BOSTON DISPENSARY

25 Bennet Street, Boston

Medical Conference Program
9-10 A.M., May, 1936

Friday, May 1—Certain Aspects of the Thyroid. Dr. David Rapport.
Saturday, May 2—Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, May 5—Injury and Disease of the Epiphyses. Dr. John D. Adams.
Wednesday, May 6 — Erythroblastic Anemia. Dr. James Baty.
Thursday, May 7 — Endocrine Clinic. Dr. Charles Lawrence.
Friday, May 8—The Early Diagnosis of Brain Tumors. Dr. Gilbert Horrax.
Saturday, May 9—Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, May 12—Clinical Preventive Medicine. Dr. Robert W. Buck.
Wednesday, May 13—Hospital Case Presentation. Dr. S. J. Thannhauser.
Thursday, May 14—Effect of Protamine Insulinate on the Blood Sugar, Case Presentation. Dr. Harry Blotner.
Friday, May 15—Thyroid and Psyche. Dr. James H. Means.
Saturday, May 16—Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, May 19 — Clinical Diagnosis of Jaundice. Dr. Howard M. Clute.
Wednesday, May 20—Hospital Case Presentation. Dr. S. J. Thannhauser.
Thursday, May 21 — Social Service Case Presentation. Miss Edith Canterbury.
Friday, May 22 — Newer Aspects of Diabetes. Dr. Reginald Fitz.
Saturday, May 23—Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, May 26—The Effect of Endocrine Disease on the Cardiovascular System. Dr. H. C. Gordinier.
Wednesday, May 27—Hospital Case Presentation. Dr. S. J. Thannhauser.
Thursday, May 28—Blood Clinic Presentation. Dr. Isadore Olef.
Friday, May 29 — Observations on the Circulation During Pregnancy. Dr. C. Sidney Burwell.

BOSTON UNIVERSITY SCHOOL OF MEDICINE SURGICAL CLINIC, BOSTON CITY HOSPITAL

Dr. Philemon E. Truesdale, Surgeon-in-Chief of the Truesdale Clinic in Fall River, will talk to the students on Friday, May 15, 12-1, in the Cheever amphitheatre.

The discussion will be opened by Dr. William R. Morrison, Clinical Professor of Surgery.

Physicians and medical students are invited.

ASSIGNMENT OF SURGEON FERGUSON BY THE U. S. P. H. S.

Acting Assistant Surgeon Charles Ferguson has been directed to proceed from Ellis Island, N. Y., to Boston, Mass., to attend the American Urological Association from May 18-22, 1936, and return. April 13, 1936.

BOSTON PHYSICIANS REPRESENTED AT THE MEETING OF THE AMERICAN HEART ASSOCIATION

Among the contributors to the program of the American Heart Association at the meeting in Kansas City, Missouri, May 12, the names of Boston physicians appear as presenting papers as follows: Dr. Soma Weiss and Dr. George P. Robb on "Cardiac Asthma (Paroxysmal Dyspnea) and Failure of the Pulmonary Circulation"; Dr. Howard B. Sprague on "The Differential Diagnosis of Congestive Heart Failure and Constrictive Pericarditis (Pick's Disease)"; Dr. James C. White on "The Control of Sympathectomized Blood Vessels by Sympathomimetic Hormones and Its Relation to the Surgical Treatment of Raynaud's Disease," and Dr. R. H. Smithwick on "Modified Dorsal Sympathectomy for Raynaud's Disease (Vascular Spasm) of the Upper Extremity."

REPORTS AND NOTICES OF MEETINGS

ROBERT B. BRIGHAM HOSPITAL CLINIC

A clinic on Still's Disease was held March 18 at the hospital. Four patients were shown. The first, an eleven year old boy, developed polyarthritis at the age of six, and practically every joint was involved. The second patient was a sixteen year old girl whose illness started three years ago with slight symptoms in the ankles and wrists. She had lost thirty-five pounds but had regained fifteen. The third patient was an eleven year old girl whose illness started at the age of four. A synovectomy was performed on the left knee in 1931, while the right knee was treated with x-ray. It was shown that the knee treated with x-ray was much the better of the two. This girl had made remarkable recovery from a process which involved practically every joint in her body. The fourth patient was a thirteen year old girl whose symptoms started at the age of ten. She has had a persistent swelling of the right hand. During the six months she has been in the hospital there has been no advance in the arthritic process.

Still in 1897 described an arthritis affecting children characterized by enlargement of the spleen and lymph nodes. The disease is not common. Probably less than one per cent of all patients with arthritis may be said to have this form of the disease. From our present knowledge of arthritis it is best to consider this process a rheumatoid arthritis occurring in childhood. It is not essential to have enlargement of the spleen and lymph glands to make the diagnosis. In the four cases mentioned above two had palpable lymph nodes, and none had enlargement of the spleen. The increase in size of the spleen is probably an early manifestation of involvement.

The cause of Still's disease being unknown, the treatment is based essentially upon restoring the functional level of the body to the highest possible degree through adequate supervised rest, proper diet, protection for the joints to prevent deformity, and graded exercises supplemented by physiotherapy and hydrotherapy. A Hubbard Tank has recently been installed in this hospital, and it is felt that underwater exercises are of great value in bringing about improvement.

At the close of the clinic the histories of several patients were reviewed who had been restored to usefulness and independence after having been severely crippled by this type of arthritis. Patience and persistence with careful supervision over a period of years make it possible to achieve satisfactory results in the majority of cases.

NORFOLK DISTRICT MEDICAL SOCIETY

The second Conference of the Insurance Company Executives, Hospital Executives, and Physicians was held at the Boston Medical Library, on January 17, 1936, at 12:00 M. The following were present: Mr. William P. Cavanaugh, of the National Bureau Casualty & Surety Underwriters, of New York, representing the Bureau group, who came here expressly for the purpose of attending this Conference; Mr. P. W. Linscott, of the Employers' Liability Assurance Corp., Ltd., representing the Non-Bureau group; Mr. Charles E. Wilde, of the Liberty Mutual Insurance Company, representing the Mutual group; Dr. Henry M. Pollock, Supt. Mass. Memorial Hospitals, representing the Hospital Executives Association group; Dr. Charles E. Mongan, President Massachusetts Medical Society; Dr. A. S. Begg, Secretary, Massachusetts Medical Society; Dr. Charles C. Lund, representing the Suffolk District Medical Society; and Dr. Henry M. Landesman, representing the Norfolk District Medical Society.

The chairman made the following introductory remarks:

"Gentlemen:

"We are now here in a small but representative group to formulate an agreeable and workable plan for the benefit of the Insurance Companies, Hospitals, and Physicians without harm to the Patient, and the Lawyer.

"From a careful study of the situation I cannot see why it is not the best policy for all concerned to work harmoniously. You gentlemen from the insurance companies seem to have agreed that there have been unnecessary abuses perpetrated by patients or lawyers, and sometimes both. As far as you were concerned, you really had no hand in it. From my knowledge of the situation, the bills of the physician and/or hospital were always taken into consideration as part of your settlements.

"We here present know exactly what the situations have been. There is really no need of going through it all over again.

"There is but one thing for us to do, and that is, to agree on a plan. If the plan which I presented at our last conference does not exactly cover the situation, let us, if we can, create one which will.

"Now, I believe, we are ready for action."

Dr. Pollock opened the discussion. He was of the opinion that according to an old law, the hospitals and physicians are actually protected in the payment of their bills, by the "Uniform Policy Law":

THE UNIFORM POLICY

It is understood that all policies were made uniform in 1935.

I. Coverage "A" provides—"To pay on behalf of the insured . . . all sums which the insured shall become obligated to pay by reason of the liability imposed upon him by law for damages to others for bodily injury, including death at any time resulting therefrom, or for consequential damages consisting of expenses, incurred by a husband, wife, parent, or guardian for medical, nursing, hospital, or surgical, service in connection with or on account of such bodily injury or death."

Dr. Pollock continued: "Assume that the physician or hospital should bill the insured for services rendered, say sending the bill by registered mail with a return receipt to the insured, with a copy thereof to the insurance company and should look to the insured rather than to the patient for payment, would not the insured under Chapter 346 of the Acts of 1925 be liable for the professional or hospital service rendered and would not the insurance company before effecting a settlement see that reasonable bills so rendered were paid?

"Would not the insurance company under its contract with the insurer be liable for such bill?"

Mr. Wilde, Mr. Cavanaugh, and Mr. Linscott, from the Insurance group, discussed the above "Uniform Policy", but there was a question of doubt whether this would hold.

Mr. Cavanaugh stated that they have a lien in New York City. The medical societies have made an agreement with the insurance companies, and are protected in their bills.

Mr. Wilde and Mr. Linscott felt that on account of the nonexistence of a compulsory insurance law in New York, such an agreement could not work in Massachusetts.

The insurance company representatives, Mr. Linscott, Mr. Cavanaugh, and Mr. Wilde, were convinced that an injustice is being done to physicians and hospitals, and this could be remedied without the alternative of having a new law passed, which at times would work out to great disadvantage and incur an unnecessary expense to the insurance companies. They were willing and anxious to get the situation straightened out as soon as possible.

The chairman had hoped that the plan which he had introduced at the previous meeting, based on the objections discussed by all concerned and which the insurance companies felt, covered the situation satisfactorily, would be adopted, but Dr. Begg thought it might be better for the insurance companies to present a plan. Then the medical men and hospital executives could take that up and make any suggestions which they felt were necessary.

Mr. Linscott said that there were many physicians who caused much trouble by building up cases with lawyers especially where there were no witnesses, and where there actually were no injuries. Such cases cost the insurance companies a great deal of money. Besides, it was absolutely fraudulent. He said that insurance companies had a list of the doctors who were doing such work and he wanted to know whether such doctors could be punished by the medical societies.

Dr. Begg informed him that each county society has a "Grievance Committee," and the Massachusetts Medical Society has a Committee on Ethics and Discipline, that when anyone was found guilty by this Committee, the case would be referred to the Massachusetts Board of Registration in Medicine, which has the power to suspend or revoke the license of physicians who are found guilty.

A question was asked by one of the physicians as to whether insurance companies could be punished if they did certain things which were not ethical. Mr. Linscott replied that a committee would be formed by the different insurance companies to take care of such matters.

The chairman inquired of Mr. Linscott whether he had a plan he wished to present at this conference, and he said he thought the plan presented by the chairman was a pretty good one.

Mr. Cavanaugh, who had just arrived from New York to attend this conference, wanted a little more time to acquaint himself with the situation in Massachusetts. He had no definite plan at this time.

The chairman then asked Mr. Wilde of the Mutual group whether he had a plan. Mr. Wilde said, as this was the first meeting that he had attended and as he was taking the place of Mr. Cronin, also of the Liberty Mutual Insurance Co. who could have spoken for the entire Mutual group, that he was unable to do so at this time. He spoke, however, officially for the Liberty Mutual Insurance Company "that we can agree on a gentlemen's agreement, but the Liberty Mutual stands ready to oppose all lien bills." He was not sure about the Cavanaugh lien which is in vogue in New York City. He thought that it probably would not do here in Massachusetts.

He is convinced that the insurance companies are very willing to coöperate with and protect the physicians and hospitals so far as possible and to pay bills direct to them. Of course, certain conditions must be fulfilled by the physicians and hospitals:

1. Coöperation of physicians and hospitals in giving insurance companies correct information.
2. Coöperation of physicians and hospitals for an arrangement for an early examination of patient.
3. Reasonable bills should be presented.
4. Physicians should not recommend lawyers when patients are anxious and want to settle cases themselves.
5. Physicians should discourage and refuse to accept fake cases.
6. Physicians should not interfere in the settlement of cases.

Insurance companies would not be able to take care of the following:

1. In cases where there is no liability.
2. In cases where there is a question of liability, and the settlement is made for a small sum for the purpose of getting rid of a nuisance case. The insurance company can notify physicians and hospitals of such settlements in advance.

He suggested getting an affidavit from the patient authorizing the insurance company and the lawyer to pay the physician and hospital direct when the case is settled.

Dr. Lund asked the insurance company representative what the percentage of troublesome cases was, that as far as he knew in his years of practice, he has never had any trouble in collecting his bills.

Mr. Linscott replied that there were many, but they came from certain sections of the city. He cited the case of one of his employees, a young lady, whose car bumped or was bumped slightly by another car, no one being hurt. Yet later on, one of the dishonest lawyers sued for seven passengers in the other car. The insurance company had to pay a nuisance value for the seven.

It was agreed by the insurance company representatives, the hospital representatives, and the medical representatives that they are anxious to coöperate and come to a gentlemen's agreement, that a little more time should be taken, and that the insurance companies present a plan to be discussed by the medical and hospital group. Then a final meeting should be held for the agreement.

The chairman agreed to withdraw his House Bill 1045 which covers the lien similar to House Bill 1109 as introduced by him last year, except that it contains reservations to cover the objections of the insurance companies to the bill.

The meeting was adjourned until the insurance companies present a definite plan to be ready within a week.

H. M. LANDESMAN, M.D., *Chairman.*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The March meeting of the New England Ophthalmological Society was held at the Massachusetts Eye and Ear Infirmary on March 17, 1936. The first cases were presented by Dr. Trygve Gundersen on Corneal Dystrophy. Two cases were shown in which there was a definite corneal haziness of unknown origin, insidious onset, and undetermined classification. It probably represents a hereditary trait and is more closely associated with nodular keratitis than with any other type of corneal dystrophy.

Dr. William P. Beetham presented a case of sarcoma of the iris. There are two types of this condition: the pigmented and the unpigmented. Of the 100 reported cases about one-fourth are of the nonpigmented type. Some of them start from pigmented nevi; all are considered to be of low-grade malignancy. In these cases, the pupil is slightly irregular and dilates poorly in the region of the neoplasm. The use of the slitlamp helps considerably in the diagnosis. Iridectomy may be safely performed if the tumor is small and well localized and if there is good vision in the affected eye. Cases which do not conform to these requirements must have the eye enucleated.

Dr. J. Heebert Waite spoke on Choroideremia and presented several cases which were at first thought to represent examples of this condition. Each gave a history of gradual onset of night blindness some years before. Each presented a telescopic field of vision and the fundus showed normal discs and vascular trees with an absence of most of the visible choroid. Each of the three cases shown belonged to the same family. All were markedly myopic, all had vitreous opacities and annular scotomata. Choroideremia is a congenital absence of the choroid and there are about fourteen cases in the literature. Slides of cases of retinitis pigmentosa were shown and the pathology demonstrated. In the latter condition after the epithelium loses its normal pigmentation, a layer of glial tissue is laid down which completely covers the choroid. In the youngest case shown by Dr. Waite, there were many areas where the choroid was not entirely covered and, on the basis of this case, he believes that all of the cases are probably retinitis pigmentosa rather than choroideremia as at first suggested.

Dr. Harry B. Friedgood spoke on "Experimental Exophthalmos." The anatomy of the smooth musculature of the orbit in both animals and man was discussed in detail. In animals there is a cone of smooth muscle surrounding the eyeball with its apex at the base of the orbit. In this cone there is a good deal of elastic tissue. In man there is usually only a small remnant of this cone of smooth muscle. In experimental work it has been shown that this smooth muscle is supplied by sympathetic fibres. Several investigators have shown experimentally that exophthalmos is directly due to the sympathetic stimulation leading to chronic hyperactivity of this smooth muscle cone. A motion picture was shown to demonstrate the effect of stimulation of the sympathetic fibres leading to this muscle, in the case of rabbits. Most investigators who have tried this method of producing exophthalmos in human beings have failed.

Dr. Cannon in 1914 succeeded in suturing the phrenic nerve to the peripheral end of the cut cervical sympathetic and thus produced a frequent stimulation of the smooth muscle of the orbit. This caused an exophthalmos to develop. Although it has been very difficult to repeat this experiment because of the technical difficulties involved, it has been done in Dr. Cannon's laboratory. Extracts of the anterior pituitary will also produce exophthalmos in guinea pigs when injected over a fairly long period of time. Recently the feeding of a certain species of cabbage has produced this same effect, and it has been found that the chemical compound acetylnitride is the substance in this food responsible for the reaction. The last phenomenon takes place only in immature Dutch rabbits and is inhibited by feeding green vegetables or by cutting the cervical sympathetic or by administering iodine.

After the injection of alkaline extracts of the anterior pituitary body, exophthalmos occurs and the typical changes that take place in the thyroid body in hyperthyroidism may be demonstrated. Certain cases have been observed both experimentally and clinically where patients or animals develop exophthalmos when there is no thyroid present. In animals this may be produced at times by anterior

pituitary extracts after the thyroid has been removed surgically. Dr. Friedgood closed his paper with a plea for more experimental data on this important subject.

Dr. Cannon discussed the paper and emphasized the muscle as being the preëminent factor in causing exophthalmos. He pointed out that stimulation of the cervical sympathetic also causes activity of the anterior pituitary body and of the adrenals.

NEW ENGLAND HEART ASSOCIATION

A clinical meeting of the New England Heart Association was held at the Boston Lying-in Hospital on March 23, 1936. Dr. Burton E. Hamilton presided.

The first paper on the program was presented by Dr. Arthur T. Hertig who spoke on angiogenesis in the early human placenta. Microscopic sections from some of the earliest known human embryos were demonstrated illustrating the development of venous lacunae in the chorionic villi prior to the formation of continuous blood channels.

Dr. A. Hirsheimer presented a series of lantern slides from photographs of the skin of pregnant women taken with infra-red light. These photographs brought out to a striking degree the engorgement of the superficial veins in pregnancy. Marked changes were observed between pregnancy and the puerperium in the superficial vessels of the abdomen and to a lesser extent of the legs. Dr. Hersheimer also reported observations on changes in the blood volume during pregnancy. Determinations with the Gregerson-Gibson-Stead method showed that the total blood and plasma volumes tend to increase during gestation, reaching a maximum about the ninth lunar month, and returning to the average normal level postpartum.

Dr. Mandel E. Cohen spoke on the velocity of blood flow in normal and abnormal pregnant women. Arm to carotid and crude pulmonary circulation times were studied in a group of normal pregnant women and in pregnant women with heart disease. The values all ranged within the limits of normal nonpregnant individuals. The curve, however, of the average value for each month of pregnancy showed in both the cardiacs and the normals decrease in circulation time to the fifth month of pregnancy, an increase in the tenth month, a decrease immediately postpartum and then a gradual return to normal. In general, the cardiac values were greater than the normals. The curve of the mean circulation times was seen to correlate in general with that of viscosity and hemoglobin in these patients, and to correspond to the cardiac output curve of other observers. No correlation was found between circulation time and pulse, vital capacity, venous pressure, arterial pressure or costal angle. The circulation time tests were of no clinical value.

Venous pressure determinations, done by the direct method of Moritz and von Tabora, were reported on a series of eighty-five pregnant women (thirty-one normals, twenty-one compensated cardiacs, fourteen decompensated cardiacs and nineteen "toxemics") by Dr. K. J. Thomson. With but one exception, a hypertensive cardiac with "toxemia" and congestive heart failure, all of the venous pressure readings were below the upper limit of normal, i.e., 12.0 cm. of water. There was no essential change in venous pressure as pregnancy progressed and none after delivery. The average venous pressure for the normals, the compensated cardiacs and the decompensated cardiacs was in the vicinity of 7.0 cm. of water. The data on the "toxemic" group were considered insufficient to warrant conclusions, but from the studies thus far there appeared to be no essential difference between them and the normals. Venous pressure determinations had proved to be not of practical value in the management of the pregnant cardiacs studied.

Dr. Thomson also reported a study of the vital capacity on seventy-six pregnant women (thirty-seven normals, thirty compensated cardiacs and nine decompensated cardiacs). In normal pregnant women the vital capacity is not decreased as pregnancy progresses and probably actually increases or remains essentially unchanged. In thirty of the thirty-seven normal cases studied, the vital capacity was the same or higher antepartum than postpartum. The same changes, though usually less marked, were observed in the group of compensated cardiacs but the average values in them were below those in the normal group. The average vital capacity in the normal group falls within the normal nonpregnant range; the average in the compensated cardiacs falls below the normal nonpregnant range. Three cases are presented who developed cardiac decompensation while being followed at monthly intervals with vital capacity determinations. These patients showed a drop in vital capacity, before the onset of clinical heart failure, of 20-25 per cent as contrasted with the maximum drop in a normal pregnant woman of 8 per cent and in a compensated cardiac of 7 per cent. The changes in vital capacity in cardiac decompensation in pregnancy are identical with those observed in nonpregnant cardiacs who decompensate. It is concluded that accurate vital capacity determinations made at frequent intervals during pregnancy on the pregnant cardiac may serve as a guide in predicting and diagnosing early heart failure before it is apparent clinically.

The papers of Drs. Cohen and Thomson were the subject of interesting discussion by Dr. C. Sidney Burwell and Dr. Soma Weiss.

Dr. Harold M. Teel presented a series of cases in which severe nonconvulsive toxemia of pregnancy was complicated with sudden seizures of dyspnea, accompanied by acute pulmonary edema. The attacks closely resembled severe cardiac asthma. Past histories, follow-up studies and an autopsy indicated that these seizures in some instances complicated simple acute preëclampsia, without antecedent hypertension, valvular heart disease, or chronic nephritis. The suggestion is made that the mechanism of acute pulmonary edema in eclampia may be similar to that in these cases of preëclampsia.

Because of lack of time, two papers on the program were read only by title. These were "Observations on Lead V of the Electrocardiogram in Pregnancy" by Dr. K. J. Thomson and "Causes of Death of Cardiacs in Pregnancy" by Dr. Burton E. Hamilton.

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at the Faulkner Hospital on Thursday afternoon, April 2.

Of the two cases which were presented for clinical pathological discussion, one was that of a woman, forty-nine years of age, who had used alcohol freely for some years and who had had two cesarian sections and one uterine suspension. The clinical picture was typical of intestinal obstruction and, as so often happens, the condition was aggravated by increased amounts of cathartics having been taken by the patient without seeking medical advice. At the autopsy, there was evidence of alcoholic cirrhosis of the liver in the early stages and an intestinal obstruction caused by an adhesive band from the uterus complicated by a volvulus. At the time of the operation general peritonitis was present.

The other case was that of a boy, fifteen years of age, who died of sepsis associated with a streptococcus infection of the larynx and pharynx. The autopsy showed that the death was due to toxins and not to mechanical obstruction, which was feared at one time. For comparison with this specimen of the larynx showing a marked edema and infiltration, there was shown again the specimen of the larynx from the case of laryngeal diphtheria which was reported the preceding month making a very instructive pair of specimens.

Following the presentation of these two cases, Dr. Henry C. Marble showed the final result on two cases which he had presented at one of the meetings two years ago. The first was a boy who had an acute infection in the hip which had been drained. The interesting feature in the case was the marked ability of the young man to adapt himself to a hip joint which was absolutely fixed.

The other case was that of a boy who had had a skin graft from the abdominal wall to the palm of his hand. Although the palm of his hand is now covered with skin which has hair follicles in it the result is very satisfactory. The interesting point is the fact that sensation is present in this large skin graft. Just how the nerves regenerate is one of the interesting features of this type of grafting.

Dr. Marble then presented a case in which he had reconstructed the cut tendons of the hand which had become infected with marked retraction of the ends of the severed tendons.

Finally Dr. Marble emphasized the importance of having patients come to a hospital preferably forty-eight hours before an operation. The Faulkner Hospital has tried to stimulate its surgeons to follow this procedure with only moderate success with some. Dr. Marble feels that the length of stay in the hospital is not increased by this procedure, and that complications are markedly diminished. He said that the insurance companies in his experience were glad to coöperate in this procedure so far as paying the bills of the patients is concerned.

Dr. Frederic J. Cotton then presented a series of cases in which ankles had been reconstructed following fractures which had healed with marked deformity. If a cartilage persists on the surface of the astragalus a new ankle joint can be produced which is exceedingly satisfactory.

He showed some cases in which the diagnosis of sub-acromial bursitis had been made, but in which he thought the pain on certain motions was probably due to the prominent greater tuberosity of the humerus. In several of these cases he had removed the prominent greater tuberosity subperiosteally with favorable results so far. The cases have not gone over a long enough period for him to speak positively about the final results.

He then showed x-ray pictures and described the operation of nailing the fragments together in a fractured hip. Apparently this operation does not produce shock. It saves time for the patient and allows motion in bed, and therefore, is a distinct improvement in the handling of fractured hips which, in elderly people, are so apt to result in a fatality from the prolonged and forced rest in bed.

He then, with Dr. Gordon M. Morrison, showed a series of x-rays of foreign bodies in the knees, usually spoken of as osteochondritis dissecans. They called attention to the fact that just what produces this condition is not always known, but they feel sure that one type is due to trauma, and another type is due to an overgrowth of bone around the edge of the cartilage which eventually breaks off and becomes a foreign body. Usually this can be removed by approaching the joint from the front, but they showed one case in which it had become necessary to approach the joint posteriorly. This had been done and the foreign body had been removed by this route successfully.

NEW ENGLAND SOCIETY OF PSYCHIATRY

The annual meeting of the New England Society of Psychiatry was held at the Gardner State Hospital on April 22, 1936. About 175 members of the representative New England States were present. Following a luncheon, served through the courtesy of the hospital, the business meeting was called to order by the president, Dr. Horace G. Ripley, of Vermont. The following physicians were elected to active membership: Maudie M. Burns, M.D., of Middletown, Conn.; Drs. Edwin M. Cole and Merrill Moore of Boston, Mass.; Dr. Salvador Jacobs of Danvers, Mass.; Dr. William J. Johnson, of Wrentham, Mass.; Dr. Fernand Longpré of Northampton, Mass., and Dr. Hosea W. McAdoo of Arlington Heights, Mass.

Officers for the coming year were nominated as follows: President, Dr. Winfred Overholser, Commissioner of Massachusetts Department of Mental

Diseases, Boston, Mass.; vice-president, Dr. Chester Waterman, Superintendent, Connecticut State Hospital, Norwich, Conn.; secretary-treasurer, Dr. Harlan L. Paine, Superintendent of Grafton State Hospital, North Grafton, Mass. (reëlected); councilors, Dr. Arthur P. Noyes, Superintendent of the State Hospital for Mental Diseases, Howard, Rhode Island, and Dr. Roderick B. Dexter, Superintendent of the Foxboro State Hospital, Foxboro, Mass.

Announcement of the winners of annual awards for the best papers embodying research in psychiatry completed during the year 1935 was made and awarded as follows: Dr. Benjamin Cohen for his paper "Repression and Communicability in Catatonic Stupor" (Staff, Grafton State Hospital), Tamara Dembo and Eugenia Hanfmann, of Worcester State Hospital, for their paper entitled "The Patient's Psychological Situation upon Admission to a Mental Hospital," and Drs. Benjamin Simon, Worcester State Hospital, and Philip Solomon, Boston Psychopathic Hospital, for their paper "Multiple Sclerosis."

Dr. Abraham Myerson, of Boston, Mass., was the principal speaker and his subject was "The Neuroses."

HARLAN L. PAINE, M.D., *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY

The Suffolk District Medical Society met March 18, 1936, at the Boston Medical Library, with Dr. C. Wesselhoeft presiding. Dr. David B. Dill presented the first paper of the evening on the topic "The Laboratory Study of Fatigue." He pointed out that no exact definition of "fatigue" could be given. It involves some sort of upset of equilibrium, and physical exertion does not necessarily precede its onset, for, as is well known, fatigue may occur when an individual is sitting quietly in a comfortable chair, or lying in bed. The rate of onset of fatigue is quite variable, as is illustrated by its relatively slow development in the participants of a Marathon as compared with its rapid appearance in men competing in a quarter-mile race. One of the changes involved in fatigue is the mobilization and utilization of fuel: first the readily available carbohydrate, and subsequently fat. Little is known about the processes involved in the utilization of fat for energy purposes, although it is recognized that the ability of females to do so is much less than that of males, the former developing ketosis after a short period of starvation much more easily than the latter. There is also a great species difference in the ability to utilize fats for energy, as is exemplified in dogs, in which animals it has been demonstrated that there is no evidence of acidosis in spite of a loss of 10 per cent of the body weight during prolonged exertion.

In extremely severe exertion the fat cannot be mobilized quickly enough to supply the needed energy, and after the exhaustion of available carbohydrate, extreme fatigue ensues. It has been shown that administration of glucose by mouth to dogs performing severe physical exercise practically doubles the length of time that they are able to work before the onset of extreme fatigue. Dr. Dill has confirmed these findings in human beings, finding that the energy derived from carbohydrate falls progressively during prolonged exertion, and that administration of carbohydrate food enables individuals to work longer without fatigue. Injections of adrenalin also served to provide more available glucose for the body's use, and caused better utilization of carbohydrates. Following this effect there was no compensatory drop in the respiratory quotient, indicating that the secretory activity of the adrenals is of marked importance in the body's resistance of fatigue.

During exercise there is an accumulation of lactic acid in the blood stream, but the amount of this substance present in the blood is not an indication of the degree of the body's fatigue. It has been found that recovery from fatigue occurs in two phases: the first, of short duration, during which there is only slight decrease in the blood lactic acid, and the second, of long duration, with a slow disappearance of lactic acid. Partial recovery from a brief period of anaerobic activity may occur in as short a time as five or six minutes, and the individual may again be able to perform work, although elevated levels of lactic acid may persist in the blood for an hour or longer. It is known that the immediate energy for muscular activity comes from the breakdown of phosphocreatin, and that this product can be re-synthesized by use of the energy liberated in the formation of lactic acid, from muscle glycogen. It is probable that the first phase of recovery consists in the rebuilding of phosphocreatin at the expense of the formation of more lactic acid, and that the second phase represents the more gradual rebuilding of lactic acid into glycogen. It is probable that the physical fitness of an individual is indicated by the rate of accumulation of lactic acid in the blood stream.

After strenuous exercise the acidity of the blood as measured by its pH is markedly increased, but due to the rapid elimination of the excess carbonic acid through the lungs this acidity quickly returns to normal after cessation of the exertion.

The acceleration of the heart rate as a result of exercise is much more marked in individuals in poor physical condition than it is in those in good condition. It has also been found that the heart rate is accelerated to a greater degree when a certain amount of work is done in a hot environmental temperature than in a cold atmosphere. Prevention of evaporation of perspiration from the skin causes an extreme acceleration of heart rate in response to bodily activity, and causes fatigue to develop much more rapidly than occurs if free evaporation of bodily moisture is allowed.

Dr. Arlie V. Bock spoke on "The Clinical Aspects of Fatigue." He emphasized the fact that certain individuals fall into fatigue because of the lack of a rational basis of living. Some of their symptoms of fatigue may be accounted for by an "irritable

nervous system", and when no pathological basis for the existence of headache, vague abdominal pain, skin lesions, and other indefinite complaints can be found, the family history, business relationships, recreational habits, and "mode of living" should be investigated. Although the mechanism of pain in these cases cannot be explained, effective therapeusis can often be instituted if the underlying cause is understood. Elimination of factors contributing to mental unrest, and the proper ordering of daily life, will cure many distressing complaints.

Dr. Bock illustrated his beliefs by pointing out that the incidence of angina pectoris is on the increase, and that it is found in persons living in communities where life is rapid and work is performed under pressure. The early deaths from coronary arterial disease occur in men who have worked too hard and under too great strain. Many patients with angina pectoris experience decrease in the frequency and severity of their attacks if they are shown the erroneous way in which they are leading their lives, and decrease the tension under which they work.

Many cases of essential hypertension have labile blood pressures in the early stages of the disease, and it is only after years of stress and strain that hypertension is persistent. The incidence of peptic ulcer is on the increase, and more cases are now found to be intractable to treatment. The incidence of this disease is much higher in individuals subjected to the wear and tear of high nervous tension. Treatment of these cases should consist in changing their life habits and occupation in such fashion as to eliminate strain.

Various skin lesions may be brought on by nervous conflict, strife, or unhappiness. These are often called erythema multiforme, and some cases of true purpura are due to this cause.

In contrast to the previously cited examples of the effects of high nervous tension, it should be noted that it is the individual who leads a quiet, sheltered existence who lives to old age. Dr. Osler realized this fact when he pointed out "the advantages of a trace of albumin and a few casts in the urine". Oliver Wendell Holmes stated, "If you want to live a long life, develop a chronic disease," and Dr. George B. Magrath has shown that "the bum has a smooth aorta, while the business man has a rough one".

Dr. Donald J. MacPherson, in discussing the papers, stated that although the clinician must make great effort convincing his patients that they are subjected to too great strain, and actually are fatigued, the psychiatrist deals with patients who are "continually fatigued", and who are "overwhelmed by exhaustion" after slight exertion. Such individuals usually live longer than the persons taking care of them. In such patients the mobilization of effort impulses passes through consciousness to a much greater extent than in the normal individual, who liberates energy somewhat automatically without much appreciation of effort. As is well known, fatigue develops much more rapidly if it is necessary to make a conscious effort to perform some task (e.g., the rapid onset of fatigue in the endeavor of learning how to swing a golf club correctly).

The degree of effectiveness of effort is also of importance in determining the degree of resultant fatigue, much less fatigue being experienced if the expended effort is successful in achieving an end. The defeated crew is always observed to be "more exhausted" than the winners. The neurotic often feels himself ineffectual, and so senses fatigue more readily.

Co-ordination, smooth team work, and good morale, when present, tend to minimize the development of fatigue, and work performed with the desire of doing it causes less fatigue than work done under compulsion.

A sense of inferiority, or strong mental conflict, contributes to the development of fatigue. There may be a fear that the individual may not appear to good advantage among his fellows; there may be a mental competition with the desire to revert to fantasy, and the desire for the pleasure of daydreaming may overcome the desire for accomplishment in reality. There may be a feeling that the acts under consideration may be undesirable, and the mind strives to inhibit these feelings, thereby lowering the efficiency of release of energy in muscular effort. Finally there may be a constitutional insufficiency, with the lack of a capacity to desire accomplishment.

Dr. Augustus Thorndike, Jr., told of the applications of theoretical knowledge in the combat of fatigue in the athletic teams of Harvard College. All competitors are given a thorough physical examination, and a history is taken to insure their physical capability of performing adequately under physical stress. They are required to eat at the training table, and diets adequate in caloric requirements and of proper balance are provided. Before competitions, extra carbohydrate is supplied to establish a reserve within the body. Since the loss of chlorides is a factor in the production of fatigue, and since there is no store of chloride in the body, this substance is supplied before, and during the game. This last measure has prevented the occurrence of muscle cramps, and has decreased the amount of weight loss during competition.

A study of football players after a hard game revealed that there was a marked elevation in body temperature, above 104° Fahrenheit in some instances.

Dr. Thorndike emphasized the fact that the phenomenon of "overtraining" in athletes is a reality. It is a fatigue of the central nervous system rather than a physical fatigue, and may be so severe as to cause loss of co-ordination, insomnia, and loss of weight.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met March 24, 1936, at the Peter Bent Brigham Hospital, Dr. Marshall N. Fulton presiding. The surgical case was presented by Dr. S. M. Dupertius: A fifty-six year old male janitor was first seen one year previously,

complaining of nervousness, tremor, and a weight loss of twenty pounds. Physical examination showed the presence of lid lag, exophthalmos, tremor of the hands on extension, a warm moist skin, and an enlarged thyroid gland. Two determinations of the basal metabolic rate showed levels of plus 40, and plus 63. Under iodine treatment this level fell to plus 30, where it remained for three days. Subtotal thyroidectomy was performed under avertin anesthesia, and fourteen-fifteenths of the gland were removed. The postoperative course was uneventful, and the basal metabolic rate at discharge from the hospital was plus 10. Except for slight residual nervousness the patient was well until six months previously, when be began to notice a progressive increase in the degree of exophthalmos. He began to suffer pain, and burning in his eyes, which watered profusely, and there were occasional attacks of diplopia. Physical examination showed a very marked degree of exophthalmos, so severe as to almost prohibit the closing of the lids. The basal metabolic rate varied between plus one and plus five. The case was presented as an example of the type of patient occasionally encountered whose hyperthyroidism is cured by thyroidectomy, but whose exophthalmos persists and progresses.

Dr. Elliott C. Cutler remarked that biopsies performed on the orbital tissues in a series of twenty cases similar to this, showed a marked increase in the bulk of the recti muscles, due to their infiltration with fat and lymphocytic cells. The hypertrophy of this muscular tissue pushed the eye forward, producing the exophthalmos. Cerebral decompression of the roof of the orbit has been reported as a successful means of relieving the symptoms of these cases.

Dr. J. H. Means stated that although hyperthyroidism is more frequently found in females, progressive exophthalmos of this type is seen in males in the majority of cases. Thyrotoxicosis is associated with a generalized disturbance of muscular tissue, and creatine metabolism. Biopsies of several different muscles in a series of cases showed the lymphocytic infiltration previously mentioned present in the eye muscles only.

The medical case was presented by Dr. W. J. Clauser: A forty-three year old male office worker developed nervousness, tremor, and weight loss twelve years previously, and was found to have a basal metabolic rate of plus 20 at that time. A subtotal thyroidectomy was performed, with subsequent relief of symptoms and gain of seventy pounds' weight. He was well for two years, when he again began to experience the symptoms of hyperthyroidism, and his basal metabolic rate was found to be plus 70. Operation was performed, and more of the thyroid tissue was removed. The basal metabolic rate after recovery from the operation was plus 12. Five years later he was seen at the Peter Bent Brigham Hospital with recurrence of symptoms of hyperthyroidism, and a basal metabolic rate of plus 36. He had been taking small doses of Lugol's solution for several months without benefit. Discontinuance of this medicine did not cause any change in his condition. He was given a course of x-ray treatments which caused alleviation of his symptoms, and gain in weight. A second series of x-ray treatments were given some months later because of another recurrence of symptoms. He was well until one month ago, when there was a fourth recurrence of the symptoms of thyrotoxicosis, and the basal metabolic rate was again found to be elevated, ranging between plus 21, and plus 37. There were no symptoms of other endocrine disturbance, and laboratory and x-ray studies were negative. Physical examination showed a warm moist skin, fine hair, sparse eyebrows, a fine tremor of the hands, a slight lid lag and stare, and the scars of the two previous thyroidectomies.

Dr. J. H. Means stated that the symptoms of this patient were so mild that response might be made to adequate dosages of iodine, and permanent relief might be so obtained. If the symptoms increased in severity, he advised a third operation, in an attempt to remove the thyroid tissue which must remain. In his experience x-ray therapy for hyperthyroidism had not proved so satisfactory as surgical treatment.

The first paper of the evening was presented by Dr. William T. Salter, on the subject "The Genesis of Thyroid Proteins."

Thyroglobulin is contained in the "colloid" of the thyroid follicles, and is a typical globulin, similar in its properties to serum globulin. It is soluble in alkaline solution, heat coagulable, will not pass through a membrane, and has a molecular weight of approximately 700,000. Chemically it consists of a long series of amino-acids connected in peptide linkage. Some of the amino-acids contain iodine. Only one-fifth of the human thyroglobulin obtained in Boston is present as thyroxin, the remainder being diiodotyrosin, which may be considered as the first stage in the synthesis of thyroxin.

In the hyperactive gland of Graves' disease practically all of the thyroglobulin has disappeared from the follicles, while in colloid goitre the follicles are large, and distended with thyroglobulin of very low iodine content. If iodine is supplied in the diet of a patient with colloid goitre, the chemical construction of thyroglobulin can be completed by the gland, and normal colloid is formed.

As previously stated only one-fifth of the iodine content of thyroglobulin is present as thyroxin. Theoretically only this thyroxin fraction of the iodine should be effective in elevating the basal metabolic rate. Actually, however, in biological tests on myxedematous patients it is found that the whole iodine content of the thyroglobulin is effective in elevating the metabolic rate. One group of investigators making determinations of potency by means of ascertaining the elevation of the basal metabolic rates of normal guinea pigs, have not verified these results, however, claiming that only the thyroxin fraction is active in elevating the metabolic rate. This effect is probably the consequence of not assaying the drug in patients.

Administration of Lugol's solution to a patient with hyperthyroidism causes a neogenesis of thyroglobulin, with resultant distention of the follicles with colloid. The Lugol's effect is a mass-law phenomenon. The iodine content of the gland is thereby increased ten-fold. Thus the gland is caused to deposit its products instead of throwing them off into the blood stream. This effect is exerted on the gland itself, and not on the hormone, as is illustrated by the fact that Lugol's solution will not lower a basal metabolic rate elevated by feeding of thyroid.

By means of a peptic synthesis in accordance with the mass-law, Dr. Salter has been able to build up a model or artificial protein which is similar in many respects to the normal thyroid protein. It has a thyroxin-like fraction which is effective in curing myxedematous patients, and the whole protein has been shown to have a biological activity very similar to that of thyroglobulin. The discrepancy in patients and guinea pigs is also found with this model protein. Its molecular weight is much less than that of thyroglobulin, however, amounting to only about ten thousand.

Dr. E. C. Cutler asked why patients with pituitary dysfunction and low basal metabolic rates (e.g., those with Froehlich's syndrome) failed to respond to administration of thyroid extract with an elevation of the basal metabolic rate. Dr. Salter answered that in order to explain this fact it would be necessary to know the relation of the hormones to the tissues themselves, rather than to the basal metabolic rate or to the blood levels of some body constituent. In our present ignorance of such relationship, no explanation can be given.

Dr. J. C. Aub spoke on the topic "Magnesium Metabolism in Health and Disease." It was pointed out that although there is a close chemical relationship between calcium and magnesium, they differ very widely in their physiological activity and distribution in the body. In general it may be stated that magnesium is in higher concentration in the soft tissue cells, while calcium preponderates in bone and in body fluids.

By means of intake-output studies Dr. Aub found that magnesium could not replace calcium in the requirements of the body, and reciprocally, calcium could not replace magnesium. While intake of acid substances such as ammonium chloride increases the output of both substances, especially of calcium, the addition of phosphates decreases this excess excretion of both magnesium and calcium. If magnesium is given by mouth in an attempt to neutralize calcium loss, it really increases the calcium output, and has absolutely no "protective" action.

The effects of various endocrine disturbances on the magnesium balance were studied. It was found that hyperparathyroid disease influenced magnesium metabolism in the same way that it influenced calcium metabolism, but only to a minimal degree. Hyperthyroidism, although greatly increasing the excretion of calcium, actually seemed to decrease magnesium excretion. Adrenal cortex insufficiency as seen in Addison's disease slightly decreased calcium output (probably because of dehydration, and binding of calcium by the concentrated serum proteins), but had no influence on magnesium balance. Although basophilic adenomata of the pituitary caused marked abnormalities in calcium metabolism, there was no observable variation in magnesium output. In conclusion Dr. Aub stated that although magnesium is present in all body cells, and is essential for life, no human disease has been found which has been shown to produce a disturbance in its metabolism.

Dr. Marshall Fulton asked why renal stones were not formed in patients with hyperthyroid disease, since the output of calcium in such patients exceeds that found in hyperparathyroidism. Dr. H. W. Sulkowitch suggested that inasmuch as the urine of hyperthyroid patients contains a high concentration of phosphates it is rendered acid in reaction, and as a consequence calcium is not precipitated.

FAULKNER HOSPITAL CLINICAL MEETING

The next clinical meeting will be held on Thursday, May 7, at 5:00 P.M. In addition to the usual pathological conference, Dr. John S. Hodgson will speak on The Diagnosis and Treatment of Head Injuries.

All physicians are invited.

SUFFOLK DISTRICT MEDICAL SOCIETY

Censors' Meeting

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 Fenway, Thursday, May 7, 1936, at 4:00 o'clock.

Candidates should make personal application to the Secretary, and present their medical diplomas at least one week before the examination.

Charles C. Lund, M.D., *Secretary.*
319 Longwood Avenue, Boston.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

Annual Meeting

The Annual Meeting of the Middlesex South District Medical Society will be held at the Hotel Continental, Cambridge, on Wednesday, May 6.

PROGRAM

11:30 A.M. Business Meeting.
Election of Officers.
12 M. Luncheon.
1 P.M. The Annual Oration will be delivered by Dr. James M. Baty. The title of his paper is Anemia in Infants and Children.

Sumner H. Remick, M.D., *President,*
Alexander A. Levi, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, May 12, at 8:15 P.M.

PROGRAM

Presentation of Cases.

Development of the Cells of the Blood and Bone Marrow. By Florence R. Sabin, M.D., Member, Rockefeller Institute for Medical Research, New York City.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D., *Secretary.*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, MAY 4, 1936

Tuesday, May 5—

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston. Injury and Disease of the Epiphyses. Dr. John D. Adams.

2:30 P.M. Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary.

Wednesday, May 6—

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston. Erythroblastic Anemia. Dr. James Baty.

†12 M. Clinico-Pathological Conference. Children's Hospital.

Thursday, May 7—

*8:30-9:30 A.M. Clinic, Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital.

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston. Endocrine Clinic. Dr. Charles Lawrence.

5 P.M. Faulkner Hospital Clinical Meeting.

Friday, May 8—

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston. The Early Diagnosis of Brain Tumors. Dr. Gilbert Horrax.

12 M. Massachusetts General Hospital Clinical Meeting of Staff of the Children's Medical Service. Ether Dome.

Saturday, May 9—

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston. Hospital Case Presentation. Dr. S. J. Thannhauser.

*10-12 A.M. Staff Rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

April 29 - May 9—Physicians' Art Exhibition. Doll & Richards Galleries, 138 Newbury Street, Boston.

April 30—Medical Clinic, Peter Bent Brigham Hospital, 3:30 P.M.

April 30—Massachusetts Society for Social Hygiene will meet at the Hotel Vendome (Empire Room), Boston, at 12:30 P.M.

April 30—Wachusett Medical Improvement Society. Medical Historical Pageant at the Rutland State Sanatorium at 8 P.M. See page 863, issue of April 23, for complete program.

April 30 - May 1—The Henry Jackson Lectures. See page 855, issue of April 23.

May 1, 2, 3 and 4—The American Association on Mental Deficiency. See page 610, issue of March 19.

May 1-30—Boston Dispensary, Medical Conference Program. See page 901.

May 7—Faulkner Hospital Clinical Meeting. See page 910.

May 11—American Medical Golfers Play in Kansas City. See page 710, issue of April 2.

May 11—American Association for the Study and Control of Rheumatic Diseases. See page 811, issue of April 16.

May 11-12—Annual Joint Meeting of the American Association of Medical Milk Commissions and Certified Milk Producers. See page 852, issue of April 23.

May 12—American Heart Association, Inc. See page 712, issue of April 2, and page 901 of this issue.

May 12—Harvard Medical Society. See page 910.

May 12-16—The International Congress of Physical Medicine. See page 443, issue of February 27.

May 15—Boston University School of Medicine Surgical Clinic, Boston City Hospital. See page 901.

May 18—Springfield Medical Association, 8:30 P.M. at the rooms of the Springfield Academy of Medicine, 29 Maple Street. The Development of Medicine in the United States, 1636-1936. Dr. Henry E. Sigerist.

May 18—The American Neisserian Medical Society. See page 811, issue of April 16.

May 31 - June 1—International Cardiological Meeting, Royat (Auvergne) Assembly of Physiologists, Pathologists and Therapeutists. See page 754, issue of April 9.

June 15-19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md.

June 16-July 28—Summer Course in Bacteriology. See page 385, issue of February 20.

September, 1936—First International Conference on Fever Therapy. See page 1325, issue of December 26, 1935.

September, 1936—First International Congress of Sanatoria and Private Nursing Homes. See page 803, issue of April 16.

September 7-10—International Union against Tuberculosis. See page 554, issue of March 12.

October 19-23—Clinical Congress of the American College of Surgeons. See page 180, issue of January 23.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 6—Annual Meeting.

May 7—Censors' Meeting. See page 863, issue of April 23.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 7—Thursday. Censors' Meeting.

May 13—Wednesday. Annual Meeting. Salem Country Club. Dinner at 7 P.M Speaker: Dr. Paul White.

R. E. STONE, M.D., Secretary.
88 Lothrop Boulevard, Beverly.

FRANKLIN DISTRICT MEDICAL SOCIETY

May 12—Weldon Hotel, Greenfield, at 11 A.M.

CHARLES MOLINE, M.D., Secretary.
Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 6—Bear Hill Golf Club, Stoneham, at 12:15 P.M.

K. L. MACLACHLAN, M.D., Secretary.
1 Bellevue Avenue, Melrose.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

May 6—See page 910.

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting. (Place, date and subject to be announced.)

The censors meet for the examination of candidates: May 7, 1936; November 5, 1936.

FRANK S. CRUICKSHANK, M.D., Secretary.
1236 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

May 21—Lakeville State Sanatorium.

G. A. MOORE, M.D., Secretary.
167 Newbury Street, Brockton.

SUFFOLK DISTRICT MEDICAL SOCIETY

May 7—Censors' Meeting. See page 910.

ROBERT L. DeNORMANDIE, M.D., President,
CHARLES C. LUND, M.D., Secretary.

WORCESTER DISTRICT MEDICAL SOCIETY

May 7—Censors' Meeting. See page 713, issue of April 2.

May 13—Wednesday afternoon and evening. Annual Meeting of Society.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester.

BOOK REVIEWS

Lactobacillus Acidophilus and Its Therapeutic Application. Leo F. Rettger, Maurice N. Levy, Louis Weinstein and James E. Weiss. 203 pp. New Haven: Yale University Press. $2.50.

In his book, Rettger and his collaborators present a fairly complete monograph on the subject. For the average medical reader there is little of practical interest that could not have been said in a very few pages. The first chapters of the book are of interest only to the bacteriologist and are controversial in nature regarding the identity of the acidophilus organisms.

In subsequent chapters, therapy is considered in relation to simple constipation, constipation and biliary tract disease, "mucous colitis", and idiopathic ulcerative colitis. These four groups of disturbances are discussed in more or less detail with a small number of illustrative case histories. So far as the discussion of constipation is concerned, it is an excellent one but it is very curious that no mention is made of one of the most important causes of constipation, namely, failure to establish a bowel habit in otherwise normal patients. The results obtained in this group of patients with simple constipation would seem to be satisfactory in many instances and the patients were followed over a sufficient number of months, in some instances as many as twelve to eighteen months, so that the conclusions seem justified. In the consideration of the treatment of constipation in patients with biliary tract disease one finds it difficult to accept the conclusions that the biliary tract symptoms have been relieved by the use of acidophilus cultures. Such symptoms are so frequently difficult of determination and the case histories offer so little evidence of proof in this matter that it hardly seems justifiable to draw conclusions from the few case histories given. So-called mucous colitis is well discussed. A few case reports are given suggesting very strongly that adequate acidophilus therapy may be of benefit in this group. The authors obviously have an adequate conception of the condition inasmuch as they also insist upon proper treatment of the individual who has the irritable colon. The treatment of a few cases of idiopathic ulcerative colitis is discussed and here again there seems to be some benefit from prolonged acidophilus therapy. One can agree heartily with the authors, however, that it is unwise to accept without question the permanency of favorable results from this form of treatment in view of the characteristic tendency of the disease to have relapses and remissions.

One important point that the authors make is that, when acidophilus therapy is to be attempted, the cultures should be of such a standard that they are viable and the organisms are sufficiently concentrated to produce results. In addition, they insist upon the necessity of prolonged treatment before expecting anything like lasting results.

For practitioners the book is altogether too technical for general interest and for the average reader it could have been made much shorter by avoiding many controversial points. The clinical results are of interest but do not cover a sufficient number of cases to be absolutely convincing. The book should be of interest to those who are particularly concerned in this phase of therapy and it is evident that the authors have attempted an honest and thorough study of the value of this particular form of treatment.

Emotions and Bodily Changes. A survey of literature on psychosomatic interrelationships 1910-1933. H. Flanders Dunbar. 595 pp. New York: Columbia University Press. $5.00.

As the title suggests this extensive survey of nearly six hundred pages deals with the vast and rapidly growing bibliography upon the interrelationship of mind and body. It is well conceived and well executed, and also well indexed as to subjects and authors.

This book adds weighty and important evidence that the old argument over somatic *or* psychic must be replaced by the present-day attitude, *how much* somatic and *how much* psychic, as the constant interrelationship between the two cannot be denied.

Puerperal Gynecology. J. L. Bubis. 199 pp. Baltimore: William Wood & Company. $3.50.

In this book Dr. Bubis advocates delayed or immediate repair of old as well as of new birth injuries after delivery. There can be no question of the advantage and advisability of repairing fresh injuries. There can also be no question as to the desirability of having these repairs performed by an obstetrician who is at the same time a trained gynecologic surgeon. When it comes to the radical advocacy of extensive repairs of old lesions, such as operations for cystocele, amputation of the cervix, hemorrhoidectomy, etc., one may well hesitate to follow him. Bubis's argument in favor of his procedure is chiefly an economic one. That being the case it is imperative that he be able to show that the procedures which he employs are free from risk. His figures, which for the most part are from statistics collected prior to 1930, do not seem to substantiate this claim. Out of 1353 cases, whose records are classified in considerable detail, forty-six per cent showed some complication, sixteen per cent were admittedly due to the gynoplastic repairs and ten per cent were not so caused; the balance, or nineteen per cent, showed "postoperative reactions" a term which is not accurately defined. There were four deaths, at least two of which could be directly attributed to the operative interference. It does not seem to the reviewer that the author's case has been proved. Adding the morbidity of the obstetric work to the morbidity of secondary repairs to be done at a sufficient interval of time postpartum, the total would be far lower than that reported.